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THE
OHIO JOURNAL
OF
DENTAL SCIENCE.

EDITED BY
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VOL. XII.

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CONTRIBUTIONS.

THE LATEST IMPROVEMENT.

BY PROF. L. P. HASKELL, CHICAGO.

IN the last No. of the JOURNAL I spoke of the difficulties attending the wearing of lower dentures. I had seen, previously to writing that paper, in the mouth of a patient a recent device for holding the lower set in place. I have since seen two other cases; one of the patients had previously experienced much trouble wearing his lower set, saying he "wore it in his pocket" most of the time.

In each of these cases the patients were realizing great satisfaction. The plates were always in place, no trouble in eating; in fact they all seemed a complete success.

The invention is certainly original, unique and simple. It consists of a spiral spring enclosed in a tube, made of nickel, about one-half inch in length, and three-sixteenths in diameter. The tube has a cap, removable, through which passes a pivot to which motion is given by the spring. The second molar is left off the plates, and the tube vulcanized to the lower plate, and a

piece of metal vulcanized to the upper plate, against which the pivot presses.

Theoretically it would seem that the pressure so far back on the lower plate would displace it, but in fact nothing of the sort happens, the plate being held quite firmly in place. I asked each patient if the springs interfered in mastication, and they said not at all. One of these cases had been in wear a year.

The inventor is Dr. Stedman, of Laporte, Ind. He has been experimenting with different materials for springs,—steel, nickel, platinized gold,—and will probably adopt the latter. The invention is worthy the attention of the profession and I believe will prove a great boon to those who are compelled to wear lower dentures.

PORCELAIN AND GLASS INLAYS.

BY DR. D. GENESE, BALTIMORE, MD.

THE notice in October JOURNAL on the above subject requires some corrections or it may mislead many young practitioners.

For many years inlays on labial surfaces have been successfully accomplished by using the ends of continuous-gum teeth, as they taper from base to tip requiring only fine corundum wheels to cut into disks until the desired size is reached to fit the cavity; cementing in or finishing the margins with gold; the preference would be given to a tight fit with a groove cut by a diamond disk and polishing down.

Land's system of inlays would be good if the furnace did not "gas"; even then several firings would be required to make up shrinkage and to be sure of color. Like Dr. Cunningham of England, and Dr. Timme of New York, I have been experimenting with glass inlays and I will give my experience of them.

In the hand it is a feasible operation; in every-day practice it is a very uncertain material to handle. We must be guided by the case itself, not as we see it in the hands of Dr. Timme.

In the first place the gold will not keep its form while being taken from the mouth, and warping under fire, and the slightest pressing of the pliers in holding to fill the gold matrix will make a faulty inlay, which no amount of coaxing will make fit, therefore it is necessary to overcome this most serious of all troubles, as follows: Burnish in, or more properly speaking, press in the

gold, No. 30 foil (not 60, as it leaves too much space), with cotton rolled tightly on a dull pointed broach, using two, one to steady the base, the other to work it into place; leave plenty overlap; then remove and fill the impression with soft wax, and trim the gold with care to leave a small overlap; replace in cavity, warm slightly, and press thoroughly into position; cool this; remove and invest very lightly in Teague's compound. You then have a true matrix to fuse the glass into.

As we receive it from the packages it is very likely to burn the color out, and I have found it troublesome in that respect. To overcome this I have adopted the following plan: burn the color into spar; grind and mix with the glass; this gives a higher grade and more tooth-like substance than glass alone, with a fixed color, then if a low fusing point is desired add potassa to the desired quantity. One thing must not be lost sight of, that is, pressure is required upon the inlay until the cement is thoroughly set or it will change the position of the inlay. After the inlay is burned full enough a thin overlap or edge will be seen; if this is not burred the edges will not join perfectly. A fine glass disk run round the edge will smooth all this off leaving a true face. If a contour is desired, a matrix may be made with gold foil built to form and invested in Teague's compound to keep it in form, leaving an opening to put in the powder.

In building large fillings do not trust them to hold in place without fastening; when the inlay of gold and wax is removed, get platina pins from an old tooth, point them and press in position from the under side, letting the rivet head be as close as possible to the base, as more room is required than the cavity permits and must afterwards be deepened in the same direction as the pins are placed.

If the cavity is shallow, the under side must be roughened so cover the upper surface with wax and subject the inlay to fumes of hydrofluoric acid, which will give a good surface for holding to the cement. All inlays should be tried in, waxed into position and finally fitted with glass paper disks or diamond, as any attempt to trim on them after cementing may result in loosening from the cavity; but when once cemented well in, with a good match in color, they are the best fillings to imitate nature.

To fuse them requires a little stronger heat than when burnt on the gold alone. Over a true bunsen burner I fix platina gauze on a sliding bar with a set screw; by using this, complete control of the flame is obtained and the inlay kept exactly at the desired point of the flame, leaving both hands at liberty and complete control of the work. The gauze is milled into a rim of platina offering no impediment to the heat reaching the work.

A good result is obtained by making the first burning of a darker color and finishing with a lighter.

Always have plenty of space for approximate contours and test the articulation before cementing, waxing the inlay in and grinding any point of contact that might displace the inlay; steam or burn off any wax, and dry in alcohol.

REMARKS BY PRESIDENT BETTY

(At Ohio State Dental Society, Columbus, 1891.)

THOUGH I see I have been mentioned on the programme for the conventional annual address, I must, nevertheless, this time, honor the custom "more in the breach than in the observance."

It seems clear to me that the presiding officer should exert himself more in wisely and justly administering his executive duties than as posing as the reader of the initial paper at such a meeting as this, bringing together as it does, the talent from various parts of our own State and distinguished visitors from others, all of whom have come prepared to present matter of much importance. It is gratifying to note that so many have taken a hand to keep the cause of education in its forward march, and I sincerely believe that the present meeting will add much to the fund from which all draw their supplies. Every mite that is added, is so much gain to that training, that experience, which we denominate "education," and every one should feel proud to be a contributor.

I should like to express my approval of the new interest this society has taken in clinics and that the beginning made this year will be but an earnest effort of what we may expect in the future, and to that end we can one and all assist very materially if we only determine so to do.

Although great advance has been made within the past

several years both in scientific and applied dentistry, as well as in college training, and the increased number and quality of our periodicals, we have yet much to learn and much to do, and as the wish is father to the thought, we will now proceed to business.

EROSION.*

BY W. S. ELLIOT, M.D., D.D.S., M.D.S., NEW YORK.

PAPERS and discussions upon this subject have as yet presented but little towards a satisfactory explanation of the phenomena. References thereto seem too much of a generalization, and though it is conceded by most that the affection is of a chemical nature, yet in the concessions no chemical reactions are given, consequently our insight remains dim and knowledge is not increased.

I propose to draw no conclusions other than what might reasonably be deduced from the premises noted.

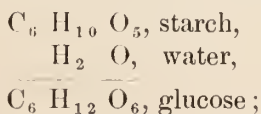
I offer this paper only as a study, and if not convincing it may lead the scientist to work out more complete demonstrations.

The glandular apparatus of the mouth is part of the general digestive system whereby foods are reduced to the requirements of nutrition.

If we cannot know the ultimate features of the digestive act, we can know something of the process and the successive steps towards its consummation.

In the saliva we recognize a peculiar substance known as ptyaline, a nitrogenous principle coincident with the properties of living matter. To it is ascribed the function and power of transforming starch and cane-sugar and other glucosides into glucose or grape-sugar. Starch is a definite chemical compound represented by $C_6 H_{10} O_5$.

Through analysis we find that such change is one of hydration, viz.: the absorption of a molecule of water, resulting in a body having new and distinctive physical properties and capabilities, known as glucose or grape-sugar. The reaction is here shown:



* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

and we further find that under the influence of progressive, or perhaps perverted energy, this molecular mass is split into two corresponding parts, and with this division is presented still other properties which fall under the nomenclature of lactic acid : $2C_3H_6O_3$.

It is to be accepted that the energy which disposes to this transformation resides in the substance of the ptyaline. The change would seem to lie strictly within the range of chemism, but it is impossible to define this limitation. We know nothing of the ultimate features of the vital force and but little of its componentry ; still, its power is noted and also the blending of the forces in the final results. We therefore style these changes a chemico-vital act.

An elaborate analysis of the ptyaline discloses certain pyoid bodies having a likeness to embryonal corpuscles or to leucocytes, and possess like them ameboid movements. These are known as Leeuwenhoek's globules. According to Rouget the more numerous are these bodies the more augmented is the production of sugar in the saliva. This has appeared especially so in cases of mercurial salivation. This fact will prove suggestive to us in these investigations. If we now go back to the consideration of the antecedents of perverted salivation we will find excessive metamorphosis of the glandular elements through impressions of the nervous system from causes still more remote, and perhaps undefinable ; but which, could we comprehend all would lead us by successive steps to a positive understanding of the subject under consideration.

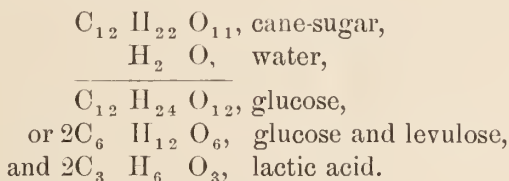
In the study, then, of erosion, we shall take cognizance of these known physiological and pathological conditions and inferentially, at least, deduce reasons for the existence of the affection.

It is well known that the direct application of grape-sugar, as of raisins, honey, etc., to the teeth frequently causes quite sharp pains indicative of neural disturbance and enhanced sensitivity ; and it is also a known fact that the persistent contact will cause the enamel to be pitted and its integrity more or less destroyed. While the molecular disintegration is thus apparent we follow in our desires to comprehend its chemical aspects as well.

Having observed the reduction of starch to grape-sugar, then to lactic acid through a chemico-vital process of hydration,

we reach the phase of the subject to which assent is generally given, namely: that the immediate cause of erosion is that of an acid saliva. But this statement is only a half truth in that the estimate is made as being altogether within the limits of chemical force. The acid condition is, as has been shown, an elaboration of vital as well as chemical influence, and as such is possessed of properties in which both qualifications are combined. A parallelism is that of stomachal digestion. Lactic and hydrochloric acids are here the products of the deliquium of the peptic glands associated with the peptones in their career of chylicification. Chemism, then, is not the only agency in the reduction and of course will not be so considered. Further, it has been the tendency to refer this acidity to the muciperous glands, but I think this reference is erroneous since the saliva is a complete production, and to it as a whole do we ascribe its functional capabilities. It is true that erosion is noticed more particularly upon the teeth in the immediate neighborhood of these glands, but there are special anatomical reasons why this should be so. Upon the incisors there is the additional agency of friction of the lips, and upon the molars that of the cheeks; and along the cervical aspect of the teeth where erosion is evident, there is retention of the saliva owing to the pocket-like character of the environment. These mechanical movements of the muscles are analogous to the churning movements of the stomach which assists in the liquification of the substances acted upon.

The reactions of cane-sugar are similar in kind to that of starch or glucose, though the disturbance may perhaps be less in degree. The change follows the same law of hydration, which is shown by the following:



So far, then we note the same results, but now for the action of the products of hydration upon the teeth. You will notice that the trend of my argument is away from the chemism as such, but including it in the general results. If, as before stated, there is perversion of the glandular secretions and an increase of

Leeuwenhoek's corpuscles with augmented production of glucose and acid, then we must realize a proportional enhancement of tooth waste; and if we estimate this waste as a strictly chemical one we must consider what are the elements concerned in the reduction. On the one hand is the acid, on the other the calcific constituents of the tooth. In this interchange the principal product can be none other than the lactate of lime. But when we estimate it from a chemico-vital standpoint we may deem the waste as more of a process of digestion, involving the necessary presence of the ferment, to which we have alluded, with the probable evolution of various complex bodies with remain undefinable.

In the empirical treatment of the affection preference is given to the use of chalk or calcium carbonate, locally applied. Science indicates this as rational since the selective energy is divested from the teeth to the free medicament where the affinities are fully satisfied. But this procedure contemplates only the effects of impaired function, erosion being a symptom only. An understanding of antecedent conditions becomes a necessary inquiry, and if full appreciation is given to the proportion herein stated we must look to systemic agencies as influencing the pathogenic elaboration of the glandular products. But here comes bewilderment since the field is so broadened that direct statement seems impossible. I am not prepared, therefore, to give indications that would serve as a guide to a rational diagnosis. Prof. Peirce recognizes a gouty diathesis as coincident with the affection. My own observations have not confirmed this, nor indeed can I express any convictions that are positive or seemingly at all tangible.

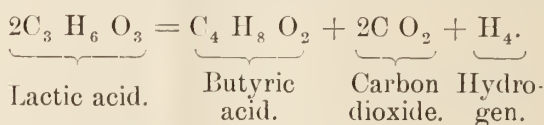
In referring to statements made by Dr. W. H. Trueman, it appears that he advocates the chemico-vital theory. He says: "Solution is not necessarily a chemical process. The idea that this destructive agent must be an acid having an affinity with the lime salts of the tooth has little but tradition to support it. The little cap which we frequently see, mainly of enamel, all that remains of a baby molar, is sufficient evidence that there may be, and is, formed in the oral cavity a true solvent of tooth tissue. I know this effect has been produced by a normal physiological process." He further suggests the idea of stomachal digestion as parallel to erosion, and excludes chemism as being only a minor agent.

Prof. James Truman says, in contradiction to this view: "Erosion and abrasion are extremely simple—governed by a law of chemical action"; and further, that "erosion is the result unquestionably of chemical solution." These opposing statements do not help us in our investigations. With the clinical facts before us, and a recognition of the main features of oral function we are led to such conclusions as the inferences would naturally point.

It is suspected that a distinction is made between the process of absorption of the roots of the deciduous teeth and erosion of the permanent ones, in that one is considered a digestive process and the other an exclusively chemical one. It is not, however, so stated. Dr. Trueman believes that there is formed in the mouth a true solvent of tooth tissue. He makes no reference to the exfoliation of the infant teeth, but only and always to erosion, which Prof. Truman denominates, as before stated, a purely chemical act. In this review the conviction is towards the oneness of the seemingly varied causes for the solution of the tooth tissue. In each instance the same energies are working towards the same results; generally within the bounds of physiological requirement and sometimes upon the side of destruction and death. We would anticipate objections to the views here enunciated, and answer, that the reason why there is not more extended evidence of erosion when the career of the glandular elements is so definitely pronounced, is that the normal limitation is that of the production of glucose which is the only condition capable of assimilation. If starch, cane-sugar, and other glucosides are not thus reduced they do not feed the tissues and are not capable of proper alimentation. It is the excessive transformation, under the more remote systemic influences, of the glucose to acid that constitutes the abnormality. A minor degree of acidity may not be incompatible with proper functioning. Indeed, it is possible that it is beneficial, as it appears to be stomachal digestion.

The solution of the roots of the deciduous teeth does not depend more upon the formation in the mouth of a true tooth solvent, than upon the digestive properties of the globular elements of the sulci, for these are endowed with the same properties as are the products of the salivary glands. All animal tissues—the blood, muscles and mucous membranes in general possess the property to a limited degree.

If undue acidity and erosion are dependent upon antecedent conditions, then the immunity therefrom is in proportion to the infrequency of the first cause, and if a gouty diathesis is coincident with the affection the absence of erosion is accounted for by the rare occurrence of the predisposing conditions. Should we follow out to a further limit the process of fermentation in the mouth, it will be observed that lactic acid and calcium lactate are also prone to decomposition. Foul and ill conditioned mouths that arise from total absence of hygienic care testify to this continued transformation towards an extreme degree of putrefaction. The breaking up of the molecule of lactic acid is formulated thus :



The active agency here is a specialized organism described by bacteriologists as of the order of vibriones ; but indeed in all these various modifications of the oral secretions there are ferments equally as varied in their nature and order as are the products.

But here let me modify my first issue ; that in the study of erosion superficiality of attention has been given to the subject, I can claim no more, since there is so much that is unknown and perhaps unknowable that that which is attained to is meager enough, and if the really known transcends my feeble elucidation I will await the promulgations of the more erudite with impatient interest.

DISCUSSION.

DR. H. A. SMITH: I saw a case of erosion the other day which was of special interest to me, and I will therefore briefly describe it. A patient presented himself at the clinic who had what I termed an erosion of the central incisors upon the labial faces a few lines below the termination of the enamel. One was a devitalized tooth, the other was normal ; both were attacked by erosion precisely alike. There are two or three theories which have been advanced explanatory of this condition. One is that we have interstitial waste or a diminution (what we have been talking about to-day) of the nutrition of a tooth, and in consequence we have a breaking down or a wasting away of the hard

tissue upon the surface of the teeth. The case I have described disproves this theory. Erosion was still active upon a devitalized tooth. Nutrition being suspended, there could not have been interstitial waste. Another theory advanced is the tissues of the free margin of the gum secrete a fluid which either dissolves or digests the enamel and dentine, producing the characteristic appearance seen in erosion. Surfaces of teeth are frequently eroded quite a distance from the margin of the gum. Why is not the layer of enamel attacked next to the tissue which eliminated the solvent? The etiology of erosion is certainly very obscure. Perhaps the most rational explanation of the cause of erosion of the teeth, is, that the mucous membrane overlying the particular territory effected, secretes an acid which dissolves the lime salts. Whether this is true or not could be easily tested by applying freshly prepared blue litmus paper to the surface of mucous membrane supposed to secrete the acid.

DR. W. S. ELLIOT, New York: As regards the cutting edge of these teeth, there is no aberration except that which would be instituted through the epithelium of the upper jaw and face or lower portion of the tooth. But it shows the ordinary appearance of attrition. It is an attrition which is helped along by the same condition of saliva which produces the erosion. It would be impossible to separate the conditions entirely on the labial surface of the incisors of human teeth. We have an erosion with an attrition of the lips, which would produce abrasion as well as erosion. Upon the cervical portion of the tooth we have pockets which will hold the saliva *in situ* until it has produced its erosive effects upon the necks of teeth. That there should be a tooth isolated and giving the appearance of an erosion, it does not seem to me proper that it should be referred to any one particular gland. It is my conviction that the saliva, as a whole, is a complex substance that produces these results, but not by a chemical act, but by the physiological act of digestion, which depends entirely upon the mucous globules or peptones.

Prof. Peirce's statement, that he recognizes a faulty diathesis, is something I cannot appreciate, and in all instances where a gouty diathesis has been apparent in families, in some members of these families different effects have been produced.

I desire to lay stress upon the idea that frequently the crystals or fermentive bodies are probably instrumental in producing

erosion. When it comes down to a purely chemical process, I do not believe it exists in the mouth any more than it exists in the human stomach. It is a physiological process rather than a chemical one.

DR. H. A. SMITH: I have nothing special to say further. Dr. Elliott referred to the fact that in the case which I described there was no solvent action. He rather ascribed it to friction of the lower lip. It was of such a character that friction of the lip had no effect. It was eroded in a fine groove. The elevations were distinct on the enamel, so that the lip had no friction with it upon the plain surface. The Doctor's theory, and those we have seen elaborated, are very good as far as they go, but the main difficulty is the circumscribed territory which is affected, and if the saliva is the true cause of this condition, why is it so circumscribed?

THE USE OF ANTISEPTICS FOR STERILIZING CAVITIES BEFORE FILLING.*

BY H. A. SMITH, D.D.S., CINCINNATI, O.

My purpose in this paper is to consider briefly the use of antiseptics in sterilizing carious dentine in deep seated cavities.

It is now regarded as good practice to leave in the bottom of cavities a layer of carious dentine if by its removal the pulp should become exposed. In such cases the continued health of the pulp depends upon the thorough sterilization of this layer. Upon this point, Prof. Black says: "Where we cover in a little bit of softened dentine over a pulp nearly exposed, we may cover in the anærobic microbes. In a short time they may produce products that will destroy the pulp, or they pass through and penetrate into the pulp and infect it. This action is brought about rapidly and the poisonous matter escapes towards the pulp. If we have covered these microbes in with the filling we have sealed up the elements for destroying that pulp. So here we need an antiseptic."

In considering this subject, naturally the first inquiry would be, what chemical or physical changes have taken place in this

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

Discussions on this paper will appear next month as they could not be fully prepared in time for this issue.—ED.

layer? Dental caries suggests decalcification. The degree to which decalcification has taken place depends upon which portion,—the superficial, the middle, or the deeper seated portion,—of softened dentine is under examination. Prof. Miller in his recent work gives the result of his investigations upon the whole mass of softened dentine in the cavity, to ascertain the comparative loss of the organic and inorganic constituents. After giving his methods and the result of analysis, he says, "In plain words the carious dentine had suffered an almost complete decalcification—only one-thirteenth of the original amount of lime salts being present. The organic matter had suffered the comparative small loss of two-fifths of its original amount. This loss is no doubt attributable for the most part to the direct action of micro-organisms upon the more completely decalcified portions of the carious dentine." Continuing, he says, "The results of these experiments show that the organic matter yields last to the destroying agents." It will be seen, then, the layer of carious dentine which we propose to sterilize, is, more or less, composed of the organic matter which was originally the basis substance of the dentine. Therefore it is albuminous, and if tested, should give an acid reaction.

In selecting an antiseptic for the purpose indicated, the length of time the antiseptic may be permitted to remain in the cavity before introducing the filling, should be considered. If only for a few minutes, or during the excavation of the cavity, the antiseptic should be one that will not coagulate albumen and one that is quickly diffusible. In some of the oily antiseptics we have those that meet these conditions, preferably the oil of cassia, oil of cloves, oil of turpentine, and eucalyptol. The diffusibility of these oils is conclusively shown by the experiments of Prof. Harlan. His conclusions are also fully borne out by clinical experience. In cases requiring immediate treatment, after thoroughly drying I usually apply oil of cassia and oil of cloves, equal parts. If the carious layer is of considerable thickness would apply oil of cassia alone. The latter being somewhat irritating, the addition of oil of cloves, will, in a degree, modify this action, if liable to come in contact with pulp tissue. Myrtol has been highly recommended by Prof. Harlan because of its being a very pleasant, non-irritating and highly potent antiseptic. Those who believe the ideal antiseptic should be soluble in water, may use

carbolic acid, bichloride of mercury, trichloride of iodine, or the latest addition to this class of agents, lysol, a perfectly soluble antiseptic of the cresol group. Of the above, carbolic acid is most frequently used, and I have no doubt that in many cases if permitted to remain sealed in the cavity several hours, from 5 to 10, will effectually sterilize carious dentine. To overcome in part the coagulating properties of carbolic acid, I have been in the habit of using a mixture of carbolic acid one part, oil of cassia two parts, oil of cloves three parts. In cases when a permanent filling must follow treatment at the same sitting I find the above modification of Prof. Black's 1, 2, 3 mixture very satisfactory.

I have already referred to the need of dryness in the antiseptic treatment of this layer of carious dentine. This cannot be too strongly insisted upon. If the layer, especially the upper and more albuminous portion is saturated with moisture the diffusion of any of the antiseptics, would be greatly retarded; besides, if an antiseptic readily soluble is used, its effective strength may be reduced to a degree which renders it inert. In the layer nearest the pulp, where we may suppose caries is still active, the normal tubular structure of dentine is more nearly maintained. These minute tubes are a physical barrier to the diffusion of an antiseptic, whether in solution, an oil, or an emulsion. And if the moisture which is natural to the protoplasmic contents of the tubules, or to the micro-organisms in them is not removed in greater part, the diffusion of the antiseptic is still further interfered with. How may we obtain this dryness? By bathing the layer with an agent which has an affinity for water, as alcohol, and evaporating it with warmed or heated air.

The methods practiced to obtund sensitive dentine by dehydration are usually efficient, and if carefully followed out, by the time the cavity is prepared, we will have desiccated the layer of carious dentine in the bottom. The use of alcohol for this purpose may be objected to because of its coagulating effects upon albumen. This property, however, would be very slightly exhibited, because of the rapidity with which it would be evaporated by the hot air blast.

It may be in order in this connection to refer to a class of cases in which caries recurs after the tooth is filled, because of some defect at the margin of the cavity. Caries advances along

the wall of the cavity until the bottom is reached. Here we find a softened portion of dentine extending partially under the filling. Often, because of the difficulty in reaching this diseased portion, the filling is removed and the whole operation done over. This in some instances may be avoided provided the layer of carious dentine beyond the reach of the excavator can be sterilized. To accomplish this, the whole of the softened dentine must be thoroughly dried, the antiseptic applied and the opening carefully sealed for a day or two, after which permanent repair of the filling may be made.

It may be said, lack of thoroughness in the removal of carious dentine, begets carelessness in our methods of practice, and yet, if partially decalcified dentine on the walls of the cavity well away from the margins, may be made fixed matter, why may it not be left?

In the class of cases above described, the difficulties in sterilization increase in proportion with the increase in thickness of the layer of softened dentine under treatment. For this reason, and because of a lack of knowledge of the relative potency of the various antiseptics we use, it would be well, perhaps, to restrict their application to the sterilization of layers of carious dentine left in the bottom of cavities for pulp protection.

COMBINATION FILLINGS.*

BY J. R. CALLAHAN, D.D.S., CINCINNATI, O.

For sometime I have been deeply impressed by the seeming tendency, shown by many of the leading lights of our profession, to the utter abandonment of things practical for things scientific, so-called. For a time the energies and best thoughts of these men were directed toward the practical things in hand, and *at the same time* they did not fail to recognize the scientific; and while working under these conditions they pushed American dentistry to the front and compelled other nations to acknowledge their superiority. As an indication of the tendency of the times, I read in one of our journals not long ago an article congratulating the profession at large upon the fact, that at a recent dental

* Read before the Ohio State Dental Society, held at Columbus, O., December, 1891.

Discussions on this paper will appear next month as they could not be fully prepared in time for this issue.—ED.

society meeting, that not a practical paper or discussion was heard; that the whole time had been devoted exclusively to scientific subjects. To all of which I say, Amen, if kept within proper bounds. There is in my mind no doubt as to the propriety of devoting the whole of the time, of such societies as the American Dental Association, to scientific discussions and demonstrations. But our State societies should, in my opinion, divide the time somewhat and discuss and *demonstrate* the things of every day practice. Our hyper-scientific men, especially those who ape European practice, seem to have forgotten that there is any necessity for doing practical things thoroughly and up to the highest standard. They seem to forget that their *principal* mission is to save teeth, at least a look into the mouths of their patients would lead a conscientious operator to think so; for this reason, be it real or imaginary, when your committee called on me for a paper I concluded to direct your attention, *in a very* general way, to combination fillings.

Human opinions and methods seem to swing as a pendulum, from one extreme to the other, until, after a lapse of time we are compelled by results to seek the middle ground where we may look upon all sides of the problem in hand, thereby be enabled to recognize that which is good and discard that which is bad. Many of you can remember when fillings were all plastic or non-cohesive. All of us can remember when cohesive fillings were the rage. To-day the man who confines his practice to either extreme may be said to be a one-sided dentist. We seem to have found the middle ground in this department, and are doing our patients and our profession better service than ever before.

For our purpose to-day combination fillings will mean a combination of amalgam and gold, tin and gold, and of cohesive gold and non-cohesive gold.

It is well known to all present that the rapidly increasing weakness of the enamel borders as we approach the cervical line, calls, and calls loudly for an indestructible filling material that will spread under gentle pressure and make a perfect joint and that will not change its form during years of service. Another requirement also, is that the material must be of such nature that it can be put in place with the least possible expenditure of time consistent with perfect results.

For the sake of brevity we desire to direct your attention

entirely to the filling of compound cavities as we find them in bicuspid and molar teeth, with the understanding that the grinding surfaces of these fillings are to be made of cohesive gold only. I do not need to describe the preparation of the cavities to you further than to say, the borders should be cut away till we have as strong and even walls as possible, with a very slight groove cut along the lingual and buccal walls and the base of the cavity, or in other words, the cervical wall should be made square as the case will permit, without making sharp angles, thereby giving the filling a firm foundation to rest upon. We should get the chief anchorage at or near the grinding surface, in most cases in the fissures.

It is absolutely necessary with this kind of filling to use some form of matrix, whatever kind best suits the operator. In my opinion the matrix should be so adjusted that it will give a little, so that the filling may overlap the borders slightly. Now we proceed to fill as our judgment may direct, first with amalgam filling one or two-thirds of the approximal portion of the cavity with whatever may be your favorite brand of amalgam, then laying on the crystalloid gold prepared for this purpose, till all the mercury disappears and we have the clean gold surface. When the remainder of the cavity is filled with cohesive gold, this makes a very good filling. Under these conditions amalgam is seen to the best advantage. I have seen fillings of this combination doing excellent service for years, the amalgam shrinking much less, therefore, being far more reliable than when used alone.

If it is desired to use pure tin in the approximal portion of the cavity, we have the choice of two forms of tin, viz., tin foil and Robinson's Fibrous Filling Material. The latter being so far the superior of the former we take the liberty of passing the foil by without further notice.

With the Robinson material the mallet must be used and used very thoroughly, with it you can go to almost any extreme in contouring. It will spread somewhat under the plugger, soon turns dark but does not discolor the tooth substance, and if thoroughly condensed and properly finished, will keep a tooth free from decay, under unfavorable circumstances, longer than any single metal used for that purpose, provided it be protected from friction such as the grinding surfaces are exposed to. By way of

experiment to test the strength of this material I have here to show you a very large crown restoration, built up of Robinson's material and then a layer of gold foil tacked over the exterior surfaces giving it the appearance of a solid gold filling. I have similar fillings in the mouths of a few patients simply to see how they will stand the wear and tear. They have been in use now nearly ten years and when last examined, about a year ago, they were practically as perfect as the day they were put in. The filling to which I have given the preference for several years is composed of equal parts of tin and gold for approximal surfaces and finished with heavy cohesive gold. The material is prepared by laying a sheet of Abbey's No. 4 non-cohesive gold foil on a sheet of No. 4 tin and folding once, with the tin on the outside; then cut in strips from $\frac{1}{8}$ to $\frac{1}{4}$ inch in width; then introducing the material by hand pressure, using rather coarse and sharp serrations, once in a while bringing the mallets into use to make sure the filling is solid as possible. I have been told by dental friends that this sort of filling would disintegrate and finally wash out from under the gold, and I must confess that for a time I was quite uneasy about the large number of these fillings I had put in, but after several years of close observation I find if there is any disintegration it has been where the filling had not been made solid when put in. After the tin and gold has been in the tooth a short time a change begins to take place in the filling material. What it is I do not pretend to say, only that the material gets quite hard, as hard as amalgam. It can be separated from the gold only by cutting. There is no change of form whatever that I have been able to discover. As to strength it is perfectly safe to restore any ordinary contour. I have here an extreme case to show you that was built entirely by hand pressure, using the mallet only on the grinding surface. For a long time I have used this material for filling cavities on grinding surfaces of molars and bicuspidis for children, they do so well and show so little wear that I am tempted to use them for adults also.

I have tried many times to use non-cohesive gold in these approximal surfaces in this manner without achieving what I felt to be a success, the gold always showing a disposition to harden and get lumpy under pressure and scale in finishing. Recently my attention was called to the Wolrab pellets; have been giving

them a pretty thorough trial for about a year and so far as I can see now they fill the bill admirably. It spreads under the instrument, either hand or mallet, and does not show that harsh and brittle form so characteristic of other gold. I do not think it will make as safe a contour as Robinson's material nor will it work quite so fast as other materials mentioned; but where cavities are exposed to view and the preparations of tin are barred out on account of color, you will find these pellets will make a quick and very reliable filling under a few layers of No. 60 cohesive foil. I have avoided some details that I consider to be of some importance for the reason that I expect to put in one or more of these fillings in your presence during this meeting.

THE TREATMENT OF THE TEETH DURING PREGNANCY.*

BY DR. J. W. VAN DOORN, CLEVELAND, O.

Discussions reported for THE OHIO JOURNAL, by W. H. McKerrall, D.D.S.

I CANNOT hope in what I may say on this subject, to add anything new, or to give anything in the way of data, from cases under my own observation.

I was induced to choose the subject for two reasons: first, that it seemed likely to provoke ample discussion because, of the many opportunities for differences of opinion which present; secondly, that by the discussion, ideas, new to the younger men of the Society, at least, would perhaps be brought out.

For no man can have practiced successfully, for many years, without having had some cases of this character under his care. What he did for them, outside of the actual operations performed, doubtless he will remember, together with the results, gratifying or otherwise. Let each one then contribute his experience and his opinions derived from that experience, and we shall get at the matter thoroughly and beneficially.

The dentist no longer confines his attention to the teeth only. He looks beyond. This is not so much a matter of choice as it is a matter of necessity. We do not seek out the conditions, but rather are confronted by them. And so it follows that we find

* Read before the Cleveland Dental Society, December, 1891.

our duty and our sphere widening in many directions, one of which is suggested by our subject this evening.

Those of you who already measure your experience by years, can, without doubt, recall instances where the patient who came to you had had little or no dental work done, until called upon to fulfill the duties of maternity. You can probably also recall instances in which the work you have done, beautiful and stable for years, suddenly and under like conditions, becomes anything but a protection to the teeth, a sorry exhibition of your skill, a disappointment to the patient and a matter of more or less vexation to yourself, blameless though you know yourself to be.

For it is not always a patient who is able or willing to discriminate.

The fact is therefore apparent that during the period of gestation the teeth are likely to become sensitive and carious; and that we, in treating them, need to exercise judgment as well as skill. For our efforts, if successful, benefit not the mother alone, but find perhaps their greatest usefulness in the developing embryo.

What actually takes place? On this point authorities differ.

Is the decay of teeth during this crucial period, due to the absolute abstraction of the chemical constituents; is it due to what Dr. Abbott calls a "melting away" of the salts and their bodily transfer through the circulatory system to the embryo in uterus?

Or is it due to the action of the acid secretions now constantly present in the mouth?

This much we know. That the teeth become painful and sensitive to an exalted degree. Undoubtedly this is due to the action of acids. For it is no unusual thing for teeth to be thus affected among the perfectly well. Now comes another phase. The mother often exhibits an abnormal craving for lime, chalk, slate pencils and the like.

Some say that this appetite betokens Nature's effort to supply the waste. Others that it is simply Nature's attempt to afford an alternative for the general acid condition of the system which now obtains.

"If to supply the waste," say the first, "why the craving for lime *as lime*, which is unassimilable? Why the craving for earthy phosphates which, *as earthy phosphates*, chemistry proves

useless to the animal economy." This would seem to support the theory that the system simply needs an alkali, and, having that, is satisfied. This is not to build up, not to make good a deficiency, but merely to correct an acid condition and possibly arrest destructive metamorphosis.

On the other hand, what do we find corroborative of the theory of waste and the ability to repair that waste by the introduction of soluble salts of lime? One of the first things I found was this assertion of Prof. Black's, anything but corroborative you will agree with me. He says: "A tooth once soft, always soft; no change takes place in that tooth, because of the introduction of lime salts into the system." Questions leap to our minds that we would like to ask Dr. Black, if this be so; but as we look the field over we find him hopelessly in the minority, and so decide rather to select opinions from the other side than to devote any time to argument on this point.

Dr. Dwinelle says in effect, "Keep the system well supplied with the bone phosphate of lime, diet always toward the alkaline, use locally ant-acid mouth washes and dentifrices."

This is a summary of his treatment, and I transcribe one case of many cited by him, as proof of its efficiency. The proof, it is true, is with reference more especially to the child than to the mother, but that is hardly an impairment of the theory, I think, since the two are scarcely to be considered separately during this period.

"Mrs. C. had passed through two painful periods of gestation, with excessive acid secretions and vomiting most of the time, giving birth to a girl ten years ago, and two years later to a boy. The girl's first teeth were remarkably poor. All that were erupted of the second set can be cut away as though they were chalk. The teeth of the boy are all even worse than those of the sister.

When the mother became pregnant a third time, with all the symptoms in an unusually aggravated form, I at once put her on the phosphate treatment and prescribed diet together with general tonics. She at once began to mend. The acid secretions and eructations abated entirely; her vomiting ceased at the end of the second month, and did not return. She passed through a remarkably healthy gestation and gave birth to a boy. You may anticipate that I watched the eruption of his first teeth, with

interest. They proved to be of the finest quality. The six-year teeth are already fully erupted, perfect in all respects, and of unusual density."

I could have wished that Dr. Dwinelle had given us some statements with reference to the condition and character of the mother's teeth originally. That would perhaps have given more light on the result in the first two children, without detracting any from the value of the treatment in the last case. Something, too, in the way of a statement as to the time of eruption of the teeth in the last case, would have been a help to us, provided it was either early or late.

Dr. Darby, commenting on the remark of Prof. Black's, already quoted, says, "I differ very materially from Dr. Black, on this point, because I am positive that I have seen changes take place in teeth for the better; teeth that were soft, in early life, becoming hard and good later in life. I have also seen in my own practice, cases where a diet composed largely of phosphates was introduced, where the diet had been of a different character, containing little phosphates, and the teeth being in bad condition; and the favorable results upon the teeth, following the change in diet, were truly wonderful." Dr. Darby then goes on to say, "I think, if we could introduce into the system of women, during the period of gestation, a greater proportion of the phosphates in their food, there would be a great improvement in the teeth of their children."

And so we might continue adducing experiences and opinions. The consensus of the best writers seems to be, summarily speaking, that the system should be kept well nourished during this period, particularly with appropriate salts of lime.

Now let us look at the matter more in detail. First as to ordinary diet. Let the mother eat sufficiently of bread made from coarse flour, in which has been retained the phosphate-containing-outer-capsule of the wheat-kernel. I suppose Graham bread, rye-bread, and particularly corn-bread, would recommend themselves in this respect.

Corn-meal mush, oat-meal and rolled wheat, of course, would figure prominently as desirable foods.

Plenty of well-cooked beef, baked potatoes, and soups made of such vegetables as peas, beans, and so forth, would have their place.

Unfortunately, however, the taste may reject many of these simple and more natural means of affording a supply of the phosphates. It then becomes necessary to furnish them in another form, readily assimilable and palatable.

From among the variety of ways in which this can be done, I choose, as at once the simplest and most effectual, the Syrup of the Lacto-phosphate of Lime, to be given in doses of a dessert-spoonful in a little water after meals. This is simple, agreeable to the taste and very effective, if we may rely on the testimony of those who have used it.

Lactic acid to be given in alternate weeks. Dose: A table-spoonful, to which has been added gr. xii. Calcii Phosphatis (freshly prepared), three times a day, is another form in which we may administer the phosphate.

So much for the direct treatment. Incidentally we may be required to alleviate the frequently occurring nausea of this period. For this, Ingluvin, in doses of gtt. v. *ad*. x., as needed, is recommended.

Tonics, as indicated, should be used, and of course with them the proper means to keep the movement of the bowels regular.

In closing this part of the subject, the following questions suggest themselves:

What causes the acid conditions at this time more than another? Is it due to mal-nutrition, mal-assimilation? When nutrition is good, is the acid condition as marked? If it is, how do you account for it? Why do the teeth of the mother soften? Is it because of the dissolving influence of the acid secretions? Is it because the teeth directly go to supply the embryo, or because they are robbed of their quota of nourishment by the occupant of the womb?

In supplying the mother's system with an abundance of bone-making foods, is or is there not danger of excessive or premature ossification of the embryo, making labor difficult?

As briefly as possible, let us now consider the subject of operations at this time. Dr. Darby says, "My own practice has been, during the period of pregnancy, to fill the teeth with plasters only, as much as possible avoiding large operations and the use of metallic substances." Such is practically the unanimous opinion of the profession. The following rules are suggested:

No extracting, if it can be avoided.

No administering of gas under any circumstances.

In filling teeth, plastics only, gutta-percha preferred to the cements, as the latter rapidly succumb to the acidity of the oral secretions.

That anything fatal must perforce come of an infringement of these rules is not the point sought to be established. Direful results are possible if not probable. It is not enough for me, that you say, "Why, I have given gas to hundreds of women in that condition, with no bad results"; or, "I have extracted lots of teeth for pregnant women without harm!" As I look at it, this is not a legitimate field for experimentation, to discover how much we can do, but rather a field for marked conservativeness of action.

I now leave the subject, feeling, in the words of a familiar quotation, somewhat perverted, that "I may have said the things I ought not to have said, and may not have said the things which I ought to have said." If the latter part of this be true, there remains the consoling thought that they will be said and better said by those who follow me.

DISCUSSION.

DR. C. R. BUTLER: The observation is that the chemical constituents of teeth do change during the period of pregnancy; whether this may be altered by feeding has not as yet been well proven. The acid condition spoken of so much is perhaps no more than other abnormal phases, but its effect on tooth structure is apparent. Its effect on the borders of fillings shows that there is certainly something abnormally active.

We should insist that the patient use an abundance of chalk and such like, and by so doing arrest this acid condition somewhat; and in all cases the conditions must be well fathomed to produce the desired result. I think it is claiming a great deal to say that the effect is carried from mother to child; it may be to a certain extent in some cases; that I admit. In regard to extraction during pregnancy, I think that the extraction of a troublesome tooth or root is more beneficial than detrimental. I do it and am not afraid to recommend it.

DR. S. B. DEWEY: I think that the principal cause of the trouble women have with their teeth, during pregnancy, is due to poor assimilation of the nutrient portions of food. The unusual

demand for more nutrition sometimes produces inflammation of the pulp, due to the great supply of impoverished blood necessary to produce the desired amount of nutrition.

I don't think we find this acid condition to any great extent where nutrition is good. As to food, Nature never intended that we should use concentrated food. Pregnant women not only need coarse food, but something bulky. The stomach needs something to do. It must have work. Among articles of food fruits demand a prominent place, especially in alkaline conditions where the fruit acids are in great demand.

In cases of so-called "melting away" or softening of tooth-structure, I advise the use of phosphorus, dose 1-100 to 1-50 gr., twice a day. Continue this for about ten days, then stop for a few days, then continue as before.

I do not agree with the essayist in regard to the use of "plastics." I think that in cases of apparent softening of tooth-structure, that the insertion of cements results in death of the pulp. In using cements, I first wash the cavity with Comp. Tinc. Benzoin. If the patient is suffering a great deal, and the shock from extraction would be very great, I never hesitate to give gas; but always with the greatest care.

I think that this craving spoken of is a pathological condition brought about by poor nutrition. Restore nutrition to its normal condition and you will find that the abnormal craving will cease.

DR. W. H. WHITSLAR: During pregnancy we should advise the patient to give more care to her condition from day to day, rather than to the ultimate result. They are constantly thinking of what they will be called upon to endure, instead of turning their attention to that which will produce the greatest amount of comfort during the critical period.

DR. J. R. BELL: I think that in most cases the "mental condition" is overtaxed, while the physical condition is neglected. This is usually the result of their sensitiveness in regard to their condition. They shun society and read a great deal, thus overtaxing their "mental powers." This should be avoided as much as possible.

DR. BROWN: I think the patient should exercise a great deal and avoid excitement as much as possible. I always operate and use gold where the teeth are of good structure, being careful not to prolong the operation too long.

I always extract, when necessary, if the patient is suffering a great deal.

DR. ARMSTRONG: I have attempted to fill teeth under circumstances mentioned here to-night, and while some have lasted well, others have failed. I believe in the use of plastics during pregnancy.

DR. HENRY BARNES: I do not accept Dr. Black's theory that "enamel, once soft, always remains so." I can recall the cases of two of my lady patients, who went to Germany. When they left their teeth were quite soft. They remained in Germany for two years, and while there lived on very coarse food, and returned with their teeth very much improved, in fact quite hard.

DR. W. T. JACKMAN: I believe as Dr. Dewey does, that this craving is not a physiological condition. I believe that in such cases there is a lack of "red blood corpuscles." Why, I do not know. We notice, however, that most women in this condition are anæmic and pale. If this is a physiological condition, why is it so?

THE MICHIGAN DENTAL LAW.

THE law for the regulation of the practice of dentistry in the State of Michigan, as amended in 1891, now reads as follows:

The people of the State of Michigan enact as follows:

SECTION 1. It shall hereafter be unlawful for any person to practice dentistry in this State unless such person has received a diploma from the faculty of a reputable dental college, duly incorporated under the laws of this, or some other State of the United States, with a course of instruction and practice fully equal or equivalent to that of the College of Dental Surgery of the University of Michigan, or a certificate of qualification from the Board of Examiners provided by this act; *Provided*, That the provisions of this act shall in no way apply to or affect any person who is now located and lawfully in actual practice in this State.

SEC. 2. Said board of examiners shall be appointed by the Governor of this State, and shall consist of three practical dentists who shall be regular graduates of a reputable dental college, duly incorporated under the laws of this State or some other State of the United States, or otherwise possess the necessary qualifications contemplated by this act.

SEC. 3. Each member of this board of examiners shall serve for a term of three years, and until his successor is duly appointed and qualified; except in the case of the first board, the members thereof shall serve respectively one, two and three years as specified in the appointment of the governor.

SEC. 4. The board of examiners shall be organized as follows: The member having but one year to serve shall be president of the board; the one having two years, shall be treasurer; and the one having three years, shall be secretary. The treasurer shall make and file with the Secretary of State a good and sufficient bond to the people of the State of Michigan, in the penal sum of one thousand dollars, conditioned that he will well and truly pay over all monies received by him as such treasurer, in compliance with the provisions of this act and otherwise faithfully discharge the duties of his office.

SEC. 5. The board of examiners shall meet at least once in each year, for the purpose of examining applicants, after having given, personally or by mail, thirty days written or printed notice to each practicing dentist in the State who has filed his name and address with the secretary of said board. The said board is authorized to incur all necessary expenses in the prompt and efficient discharge of its duties, and pay the same with any monies in the hands of its treasurer.

SEC. 6. Each member of said board shall qualify by taking the oath of office prescribed by the Constitution of this State, and filing the same with the Secretary of State before entering upon the duties of his office. Should a vacancy occur in said board the Governor of this State shall fill the same by appointment.

SEC. 7. Any member of said board of examiners may, when the board is not in session, examine applicants, and in case any applicant is found competent, grant a license to him to practice dentistry in this State until the next meeting of said board, and no longer. Each applicant so examined shall pay the sum of three dollars; *Provided*, That no member of the said board shall grant a license to any one who has been rejected on examination by the board.

SEC. 8. Should any member of said board be unable to attend at the meeting of the board for the examination of applicants he may appoint in writing a substitute, who shall have the same power on the examination that the member appointing him

would have, if present. *Provided*, Such substitute be a person eligible to be a member of said board within the provisions of this act. *And provided further*, That the appointment of such substitute be by and with the written consent of the other members of the board.

SEC. 9. Each applicant for examination by the board shall pay into the treasury of the board the sum of ten dollars, which shall constitute a fund to defray the expenses of the board; and each member of the board shall receive therefrom the sum of three dollars per day for services rendered as such examiner. The board shall keep a list of the names of all persons to whom licenses have been granted under the provisions of this act, and also of all persons practicing dentistry in this State, in a book provided for that purpose, with the names arranged in alphabetical order.

SEC. 10. Any sum in excess of one hundred dollars, which, under the provisions of this act, may accumulate in the treasury of said board, shall be paid by the treasurer thereof into the treasury of this State.

SEC. 11. Each person now engaged in the practice of dentistry in this State shall, within ninety days after this act takes effect, send an affidavit to the secretary of the board setting forth his name, place of business, postoffice address, the length of time he has been engaged in practice in this State, and if a graduate of a dental college, state the name of the same, and also pay to the treasurer of said board the sum of twenty-five cents, and on failure to comply with said provisions of this section he shall be required to appear and be examined by said board.

(NOTE.—The above Section 11, was in no way altered or changed by the amendments of 1891, and applied only to persons in practice at the time of the passage of the original act in 1883.)

SEC. 12. Any person who shall practice dentistry in this State, in violation of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars, nor more than one hundred dollars, or sentenced to imprisonment in the county jail for a period not exceeding ninety days, or both, such fine and imprisonment, is in the discretion of the court. *Provided*, That nothing in this act shall be construed so as to interfere with physicians and surgeons in their practice as such.

SEC. 13. For the purposes of instruction students may be employed to assist in dental offices, and in the College of Dental Surgery of the University of Michigan, under the immediate observation and advice of the legal proprietors and professors thereof, but no person not legally valified and registered under this act shall assume the charge and management of any dental office, or the responsibility of deciding upon or the doing of dentistry in any private residence or elsewhere.

SEC 14. All persons not now registered, who desire to practice dentistry in this State, shall apply to the secretary of the board for registration. Each person seeking registration by virtue of a diploma shall send an affidavit to the secretary of the board, setting forth his name, place of business, postoffice address, the date of his graduation, and the name of the dental school from which graduated, and a registration fee of three dollars.

All applicants found qualified under this act shall be properly and promptly registered by the secretary of the board.

The above law as amended, took effect on the first day of October, 1891.

ALL SORTS.

DISCOLORED GOLD FILLINGS.—DR. NILES attributes this to the presence of phosphorus in the oral cavity.

ARISTOL'S HÆMOSTATIC PROPERTY is perhaps due to its forming a thick tenacious paste with the blood.

INCOMPATIBILITY exists between antipyrin and tannic acid, therefore do not use both together to check hemorrhage.

SALICYLIC ACID will prevent the growth of fungus in a saccharine solution if present to the extent of 8 grains in 1 pint.

HÆMOSTATIC.—Antipyrin dissolved in its own weight of water is said to be one of the very best applications to stanch bleeding.

BLUE STONE.—For mucous patches in the mouth, and abraded spots under plates, I get most favorable results by a touch of sulphate of copper,—blue stone.—W. N. M., *Archives*.

FILLING CHILDREN'S TEETH.—DR. MILAM makes it a rule never

to fill children's teeth with gold until they are 14 or 15 years of age, preferring cements, on account of liability of recurrent decay.

SYRINGE PISTONS sometimes get dry and will not work. Instead of soaking in water, smear the dry leather with olive or other oil and spread it a trifle allowing a minute or two for it to penetrate.

TO PREVENT THE METAL IN WEIGHTED RUBBER FROM IRRITATING THE GUMS, I use *non-weighted* rubber for the last layer when packing my flasks. Thus I get a smooth gum-surface with the desired weight.—JOHN K. MORSE, *Items*.

APPLYING ANTISEPTICS IN ROOT CANALS.—Thin wisps of cotton wool on broaches dipped in peroxide of hydrogen used, not with a pumping action, but rather a rotatory will lessen the danger of pushing septic matter through the apex.

CARIOUS TOOTHACHE.—By treating carious toothache by means of a mixture of equal parts of crystallized carbolic acid and flexible collodion, carried to the bottom of the cavity, the pain is said to disappear instantaneously.

PAINLESS DEVITALIZATION.—For painless devitalization of tooth pulps apply counter irritant to gum over root of tooth, after applying arsenical paste. This relieves the congestion and consequent pain, so says DR. SILLIMAN in *Review*.

ABSOLUTE ALCOHOL may be prepared for all practical purposes by placing a few empty gelatin capsules in a two ounce bottle of alcohol 95 per cent. pure—has such a strong affinity for water as to make an excellent dehydrating agent.—DR. W. A. JOHNSON.

DON'T DO IT.—Many operators adopt a very bad habit of holding, or half-holding their breath while operating, this is decidedly injurious, as it diminishes the air supply to the lungs, and interferes with due depuration of the pulmonary air.—DR. BUXTON.

ANTISEPTIC FILLINGS.—DR. W. D. MILLER in experimenting found that by using powdered sulphate of copper incorporated with cement or gutta-percha, or simply strewn upon the bottom of cavity before inserting the filling, completely checked the development of bacteria.

TOOTHACHE DROPS.—The following is recommended :

R Cocaine Hydrochlorate, 6 grains.

Water, 1 ounce.

Sig.—Place a drop on a small pellet of cotton and insert in cavity of the aching tooth.

PULP CAPPING.—The use of disks to relieve or avoid pressure from the inflamed pulp is essential if suffering is to be avoided as intense pain will be caused by pressure of the congested pulp against the sides of the pulp chamber unless there is some space for it to swell.—DR. FRENCH.

MAKING A HERMETICALLY SEALED JOINT between porcelain and gold, for crown- or bridge-work ; thin pure gold is burnished over the edge of the porcelain and when the gold cap is fitted to this the solder will follow the pure gold, thus making the joint perfect.—DR. HOLLINGSWORTH.

STERILIZE HYPODERMIC SYRINGE NEEDLES.—The necessity of this precaution is apparent. We frequently hear of suppuration following hypodermic injections of cocaine and believe it is more frequently the fault of want of cleanliness in this particular than to the employment of the drug.—L. P. BETHEL.

FOR HYPERIDROSIS OF THE HANDS the following preparation has been used :

R Eau de cologne, gms. 130 (fl. ℥ iv).

Tinct. belladonnæ, gms. 25 (fl. ℥ vij).

Rub the hands with this two or three times daily.

PROPERLY SHAPED INSTRUMENTS.—Straight line, sharp angle instruments are not in my opinion artistically or mechanically adapted to the removal of decay. Their only proper use, as it seems to me, consists in the preparation of cavities for filling, after the excavating proper has been accomplished.—NEWKIRK, *Review*.

ACCIDENTS IN GIVING ANÆSTHETICS.—Tincture of digitalis hypodermically ; draw out the tongue, and see that respiration is not mechanically impeded ; invert the patient quickly and temporarily ; use forced respiration promptly ; apply external warmth and stimulation to the surface ; avoid the exhibition of alcohol.—ED. KEMP.

TO OVERCOME EXPANSION OF PLASTER-OF-PARIS use potash alum in from 3 to 4 ounces to the gallon of water. Use not only for impressions and model but when flasking and you will not be annoyed with opening of joints in gum block work, such as occur at times when the plaster is mixed with water alone.—DR. BOWMAN McLEOD.

THE PROPER WAY TO USE MOREY DRILLS is to have a full set, and feel your way; never force the instrument, but let it feed itself; take it out and put in a smaller one, and keep on until you get an instrument that will feed itself. He assured me there was little danger of breaking them if you use a full set of drills.—DR. CRAWFORD.

CALCINED MAGNESIA as an intensifier of peroxide of hydrogen for bleaching purposes: Five parts of calcined magnesia added to $H_2 O_2$ of the usual strength bleaches more slowly, but its bleaching capacity is very much increased as may be seen by trying it on greasy or yellow cotton wool. "A word to the wise," will allow them to use it in pulpless teeth.—*Review*.

CLEANSING OF THE HANDS AFTER THE USE OF CARBOLIC ACID OR CORROSIVE SUBLIMATE.—Carbolic acid is removed from the hands by bathing them for a sufficient time in alcohol and then anointing them with lanolin. After the use of corrosive sublimate solution the hands should be bathed in a solution of common salt, 1 to 50, then washed with soap and water, and finally rubbed with lanolin.

A CAUTION ABOUT HYPODERMIC INJECTIONS.—When neurotic troubles exist subcutaneous or hypodermic injections of any kind are always dangerous. So says Dr. Dujardin-Beaumetz. In France recently two persons suffering from sciatic neuralgia were treated with antipyrin hypodermically. After the third injection gangrene set in and life was threatened, but by heroic treatment it was averted.

MENDING BROKEN BANDS, CLASPS, ETC.—Split an Irish potato, imbed the porcelain, leaving the parts to be soldered just above the surface of the potato, close up the split in the potato, holding it together with binding wire, proceed to solder, no danger of cracking the teeth. The mountings of the finest stones can be

mended in the same way without injury to the stone.—JAMES T. MELTON, *Items*.

LOCAL ANÆSTHETIC.—

R Fl. ext. aconite - - 1 part.
Spirits camphor - - 1 "
Chloroform or ether - 2 "

Sig.—Apply locally about tooth to be extracted by means of cotton pellets and have patient breathe rapidly and full at the same time.—DR. B. Q. STEVENS.

INSTRUMENTS.—Scarcity of dental instruments, and dull and dirty ones, are inexcusable.

We should not fail to do thorough work, though it may produce pain; but we should so conduct our operations as to convince our patients that we are not harsh, cruel and indifferent to their sufferings, but that we save them all possible discomfort consistent with good work.—*Items*.

REMEMBER that carbolic acid is combustible.

That five parts of phenol and ninety-five parts of water form a clear mixture.

That iodine and iodides precipitate the alkaloids.

That the etherial solutions of iodoform are not permanent.

That cocaine and borax form an insoluble borate of cocaine, while boric acid and cocaine do not.

DIPHThERIA PROPHYLAXIS.—Dr. William H. Welch commends the prophylactic value, in persons liable to exposure to diphtheria, of cleanliness of the teeth and mouth, and of the frequent use of weak antiseptic mouth-washes, nasal douches, and gargles. Loeffler recommends for this purpose aromatic waters, weak sublimate solutions (1 to 10,000), chlorine-water (1 to 1000), and thymol (1 to 500 parts of twenty per cent. alcohol.)

DEATH FROM INOCULATED DIPHThERIA.—The *Medical Press and Circular* reports the death of a young medical man by an attack of diphtheria contracted from the bite of a patient. Dr. Hensley, of Newton Abbot, attended a child suffering from the disease and was bitten while making a topical application to the patient's throat. The outcome of this inoculation was a virulent

form of the disease, which carried him off in a short time after the death of his patient.

QUICKLY MADE TEMPORARY PLATE.—Suppose a case where a root is being treated preparatory to crowning, and the patient does not wish to go without a tooth until the operation is completed. Take an impression, make a model, form on it a plate of Head's ideal base-plate, build up the material for the backing, select a rubber tooth, heat and press it in place. The plate may be readily formed by softening in hot water. Use dry heat for building up the backing and for attaching the tooth.—B. H. CATCHING, *Cosmos*.

TOOTH PASTE (FOR COLLAPSIBLE TUBES).—

Finest chalk,	-	-	-	-	-	16 ounces,
Powdered white castile soap,	-	-	-	-	-	4 ounces,
Powdered borax,	-	-	-	-	-	2 ounces,
Powdered orris,	-	-	-	-	-	16 ounces,
Powdered talc,	-	-	-	-	-	16 ounces,
Glycerin,	-	-	-	-	-	16 ounces.
Perfume to suit. Water to desired consistence.						

—*Phar. Record*.

A METHOD OF GETTING THE BEST IMPRESSION OF ROOTS FOR CROWNING.—In the first place a small piece of Godiva composition is squeezed down on the root surface, and upon which the patient is made to bite. It is then removed, dried thoroughly, and used as a tray for driving home another piece of Godiva as thin as a wafer. It is replaced, and the patient again bites. In this manner the gum is pressed away, and a very accurate impression obtained. Of course the "bite" is slightly raised, and must be allowed for.—DR. BALDWIN, *Jour. Brit. Dent. Asso.*

OBSERVATIONS ON THE USE OF COCAINE.—1. It is more dangerous when used about the mouth than in other situations.

2. It is especially dangerous when used in the posterior portion of the mouth (my observations here being limited to its use in the extraction of wisdom teeth.)

3. The sympathetic, cardiac, and respiratory nerve centres are greatly stimulated; especially is this true of the respiratory.

4. Patients who are cyanotic and have a sluggish circula-

tion bear cocaine, as a rule badly.—DR. ANDERSON, *N. Y. Med. Jour.*

TO REPLACE A TOOTH BROKEN FROM A BRIDGE WITHOUT REMOVING THE BRIDGE FROM THE MOUTH.—Cover the metal portion from whence tooth was broken with wax, press a suitable tooth in the wax in proper position. The pins of tooth-mark in the wax places for drilling holes in the bridge to suit pins. The holes should be counter-sunk on the buccal side. Rivet the pins with a dull point in an automatic mallet, and polish the head of the rivet. This mode of replacing a tooth is almost painless to the patient, and of little trouble to the operator. It makes a solid repair.—A. W. DAVISSON, *Items*.

TO PREPARE ABSORBENT COTTON.—Boil best quality of cotton batting in a 5 per cent. solution of caustic potash or soda for half an hour, or until the alkali has saponified all oily matter. Wash thoroughly to remove all soap, and nearly all alkali; press out excess of water, and immerse for 15 or 20 minutes in a 5 per cent. solution of chlorinated lime, wash with a little water, dip into water acidulated with hydrochloric acid, and wash thoroughly with water, pressing out excess. Boil again with a 5 per cent. alkaline solution prepared as before for 15 or 20 minutes, wash well, dip in acidulated water, wash well, press out and dry quickly.

CLINICS, which rightfully occupy a prominent place at all dental gatherings, it seems to me might be more instructive and reach a larger number if in all possible cases the operation or idea was demonstrated upon teeth mounted in articulators, or elucidated by charts, drawings, models and appliances, instead of being performed upon the patient, where only a limited number can see more than a small portion of the operation. I am glad to see this idea gaining ground in the profession, and hope the members of our society will appreciate its advantages sufficiently to give their demonstrations in this manner.—DR. M. G. JENISON, *Minn. So., Review*.

ADJUSTING A PORCELAIN CROWN WITH A COLLAR AROUND THE ROOT.—DR. E. PARMLY BROWN describes his method as follows: A collar is made of platinum to fit the end of the root, and the band is left wide enough so that it may be cut in slits all around

down to the face of the previously prepared root; the projections are then bent down, one at a time, over the end of the root, forming a complete covering or cap. A Brown or Logan crown is then placed in position, the pin passing through the cap into the pulp canal, and cap and tooth crown removed together and fused together with porcelain in the furnace. The cap may also be soldered onto the crown.—*Items.*

PENTAL.—According to the *British and Colonial Druggist*, this name has been given to a new anæsthetic. "It is produced in Germany, its inventor being Professor von Mering, Director of the Medical Policlinic in Halle, who chose the name he has given it owing to the circumstance that it contains five carbon atoms. It is very volatile and easily combustible. It can, it is said, be administered exactly like chloroform, and the quantity required each time need cost no more than 6*d.* Anæsthesia set in after three or four minutes, rarely later. It is not deep, but suffices to render small operations, such as the extraction of teeth, painless. It is neither accompanied nor followed by any unpleasant effects."

PAIN—ITS DIAGNOSTIC VALUE.—Pains coming on in paroxysms are neuroses, and usually involve nerve troubles. Rhythmical pains always belong to nonstriated tissues, and are usually associated with some one of the hollow organs.

Coldness, chilliness, heat, burning, itching, creeping, crawling, and similar pains are peculiar to the skin and mucous membranes.

Sticking, darting, stabbing pains are always found connected with serous membranes or connective tissue.

Throbbing, tearing, aching, and pressing pains indicate that the sensory divisions of the cerebro-spinal nerves are involved.—DR. OWENS.

CARE OF COTTON.—How many of us use even ordinary cleanliness in the matter of cotton. It is handled while your hands are infected with the pus microbes from the abscess you are treating. It is handled many times during the time each patient is in the chair. Then you put some of it into your pulpless tooth which you have taken so much care to protect from infection by microbes so far.

Your patient comes back in a few days and you are aston-

ished to find pus there. Gentlemen if you practice antiseptis in that way don't say as many dentists have said to me, "I don't see as it makes much difference whether we are so careful about applying the dam every time. You will have pus present about once in so often any way."—DR. SILLIMAN, *Review*.

GOLD FILLINGS AT TWO SITTINGS.—The cavity is prepared at the first sitting; if the process has been very painful the patient is dismissed, if not, the tooth is partially filled, and after a two hours' sitting, and before removing the rubber dam, the cavity is filled up with Gilbert's temporary stopping worked in while very soft. At the next sitting, after applying the rubber and removing the temporary filling, the gold is thoroughly washed with absolute alcohol and dried with hot air. This is repeated, and then, with a sharp excavator, the immediate surface of gold is scraped away and the new surface slightly roughened and heated with hot air. As a general rule the filling can then be proceeded with cohesively, if not it is an indication for a further removal of gold to obtain a deeper surface. The quantity of gold removed is very small.—DR. H. L. WILLIAMS, *Jour. B. D. Asso.*

FINISHING PROXIMAL SURFACES AT THE CERVICAL MARGIN.—I find in finishing them when having the cavities one-fourth or one-third filled, that with any suitable disc or strips, I can work with a great deal of freedom, and without injuring the teeth in other respects because I can see what I am doing. Afterward I continue my filling and finish and then if there is a projection or roughness at any point, left by oversight or error, it would be when the gold comes together and away from the cervical border. I think this is not a new idea; I learned it from some one, however, not long ago.

It has given me a great deal of satisfaction, especially in making contour fillings between bicuspid. I am enabled to finish the remainder of the filling a great deal easier after the cervical margin is finished. In this method the operator must not use oil or any other substance to destroy the cohesion of the gold.—DR. FULLER, *Review*.

AN EXCELLENT WAY TO MAKE STEEL INSTRUMENTS AS BRIGHT AS NEW.—Clean the instruments by scrubbing with wood ashes and soft water, to remove all rust and grease; then soak them in

a weak solution of hydrochloric acid in water (about ten to fifteen drops to the fluid ounce), for a few hours, to remove the remaining dust and grease; then wash them well in pure soft water. The next step is to place them in a bath, consisting of a saturated solution of *tin chloride*. Let them remain ten to twenty-four hours, according to the coating desired. When removed from the bath, wash them clean in pure water, and dry well. When the job is well done, the steel will appear as if nickel-plated. The technique of the process is so simple that no one should fail to make a good job, the main points being to remove all rust and grease, and have the bath a *saturated* solution of chloride of tin, the immersion being continued long enough to insure a good coating of metallic tin.—DR. J. ADOLPHUS, *Med. Brief*.

CONTROLLING DENTAL HEMORRHAGE.—Small plugs of cotton wool of different sizes are rolled up tightly, and half of them are dipped in a solution of tannin, or impregnated with the dry powder of tannic acid. The socket is then cleared of any partly-formed clot, and the cavity syringed with hot water. Then momentarily controlling the bleeding, if it be possible, by firm pressure with a pad of wool, the plugs are rapidly passed to the floor of the socket and packed in alternately, that is to say, first a plug of stypticised wool is placed in position, then a dry one, and so on until the cavity be full. The use of tannin is clean and invariably effectual. A point not to be forgotten is to count the plugs, otherwise when the time comes for removing them, it may not be possible to know that all have been withdrawn, without—what should be necessary—probing, and stirring up of the cavity with the risk of re-starting the hemorrhage. The extraction of teeth with abscess cavities at their roots, if one may say so from a small experience, seem particularly liable to be followed by an unusual amount of hemorrhage.—F. BREESE, *Dent. Record*.

DENTAL ASEPSIS.—There is no reason to suspect that Listerian dogmas have not yet permeated the dental department of surgery, and that there is room for improvement in relation to the antiseptics of the instruments employed in the dental art. We do not go so far as to advocate the extraction of teeth under the carbolic spray, but there are undoubtedly some very tangible risks involved

by negligence in this respect, foremost among which is the possibility of transmitting syphilis and blood-poisoning. The mouth is of itself the perfect model of an incubator for the spores of bacteria, fulfilling all the requirements as to heat and moisture, besides providing suitable media for their development. The dentist therefore cannot be too scrupulously careful in providing for the freedom of his hands and of his instruments from "misplaced matter," *alias* dirt. Nothing is more likely to secure for him the confidence and esteem of patients than an ostentatious observance of the laws of surgical cleanliness. Not, indeed, that they are essential to cleanliness, but because the antiseptic method, when conscientiously carried out, ensures that purity which is indispensable for perfect safety. The best agent for the sterilization of instruments is probably boiling water, which promptly places any marauding microbes *hors de combat*. It has the premier advantage of being easy of application and of not damaging the steel. "Antiseptic dentistry" would make a good war-cry, but unless all dentists practice this they will have fallen short of their mission.—*The Med. Press and Circular*, August 12, 1891.

NEURECTOMY IN TRIGEMINAL NEURALGIA.—The treatment of obstinate neuralgia of the trifacial nerve by the radical method of removing the affected structures is recommended by Dr. J. F. Putman in a paper communicated by him to the Boston Society for Medical Improvement; and his examination of the records of the operative treatment is favorable to it as a means of relief. He observes that during the past five years sixteen patients have been operated on at the Massachusetts General Hospital twenty-six times, and at several of the operations two or three nerves have been removed. A considerable amount of relief was received in every case, and in only three instances were untoward results noted. Suppuration of the jaw continued in two for some time subsequently, and in one section of the inferior dental nerve in the mouth was followed by difficulty in the use of the tongue, a marked lisp resulting, which remained for a long time.

Dr. Putman points out that in most cases of neuralgia there are present an irritable condition of the nerve centres as well as of some one or more peripheral areas. To overcome the first of these conditions, it is probably important to cut off as far as pos-

sible the stream of impulses that fall upon the diseased nerve centre, whether they come by way of the nerves that are themselves inflamed, or by way of contiguous healthy nerve. It is therefore recommended that operations should be both extensive and deep, including as much as possible of the peripheral area, and getting rid as far as feasible of the diseased nerve and its thickened sheath.—*Med. Press and Circular.*

THE FIRST STAGE OF PERIDENTAL INFLAMMATION due to pyorrhœa alveolaris may be relieved by using the following refrigerant:

R	Plumbi acatatis	-	-	3 ss.
	Tinct. opii.	-	-	3 ss.
	Water	-	-	3 vi.

M

This is to be applied with cotton. The gum should be dried and a mat of sufficient size wet with the fluid is placed upon it and allowed to remain for half an hour. When a blister is quickly needed stronger ammonia may be used as follows: A pellet of cotton the size of a pea or a little larger is wet with the ammonia, placed on the gum and a copper or lead disk placed over it to keep the ammonia in contact with the gum. Allow it to remain one-half minute, then remove and in a few moments the blister may be punctured. Wine of opium may be used to counteract this pain if it proves too severe. Absolute alcohol and chloroform or ether may be used in the same manner. After the production of the blister anodynes are to be used as tinct. benzoin comp. cocaine in liquid vaseline, iodoform bituminized and worked up in lanolin—the aforementioned lead water and opium or black drop—vinum opii, cannabis indica, belladonna, ointment made with lanolin, chloral-camphor in lanolin. The injection of chloroform two to four minims. The local application of tinct. gelsemium or veratrine—a continuous stream of hot water or the application of mucilaginous protectives or the painting with flexible collodion.—DR. A. W. HARLAN, *Review.*

A CAST GUIDING SURFACE CROWN.—Cut the band a little obliquely, and allow the band to be a little bit larger at the cutting end. After soldering the band, it is then placed upon the root and ground to articulate with the opposing tooth, bevelling the band toward the palatine side, allowing the buccal side to

remain the length you desire the cusp. Then remove the band, and with the knuckling pliers crimp the point and make the knuckles as desired. I then replace the band upon the root; in the meantime you can see whether or not it is a good fit. Then place in the band Paris fluxed wax, directing the patient to close the mouth, which gives the articulating point, or the bite of the opposite tooth. With a syringe throw upon it a stream of ice-water. Next take out the crown, and with Evans' wax spatula, trim the feathered edge of the wax next the root, and shape the cusps. With a small ball of wax placed on the palatine side of the inner cusp to form a funnel in the investment, the case is ready to be invested. This is done by taking equal parts of white sand and pumice-stone with an equal part of plaster, being careful to place the buccal side of the band down. The wax is now burned out, leaving a coating of flux. Cut up a lot of twenty-carat solder very fine, rub it on the glass with borax and water, and with the blow-pipe (without the flame) dry it off. This leaves a little coating of borax on each piece of solder. I have found this absolutely necessary to get a perfect fusion without occasionally burning the twenty-two carat band. The mould formed by the wax is now filled with this solder. This gives a perfect cast, which only needs to be polished and placed in position. The patient has only to close the mouth and it fits like a "clock-wheel."—DR. GORDON WHITE, *Sou. Dent. Jour.*

METAL POINTS IN ROOT CANAL FILLING.—I do not believe the average man can carry gutta-percha to the apex of the canal. It takes a metallic point to follow that up. I have them of all sizes of platinum and gold wire. They are made for me in Philadelphia, and I don't believe any gutta-percha or any oxychloride of zinc, or anything of that kind will go to the apex as this will. And then I have another idea—a theory of my own—that a metallic substance in the root has some influence in arresting inflammation and a beneficial effect upon the tubuli. I have a tooth here that demonstrates something in this direction. Here is a tooth that has three roots, and in one of them a steel broach was broken off that rested there for years. The tooth finally gave trouble and was extracted. Now, the other roots were filled as best they could be by something else, but of course the broach in this one stopped it. Now, in my experience whenever

I have broken off a broach in a tooth it has worried me very much, and I have resorted to all the methods that I have ever read of to get it out and to dissolve it, such as salt, etc., but I never could get one out, and I never knew one to cause any trouble by being in there. That led me to believe there was something in this metal theory. Now, here is the tooth I referred to. Here in this root is the broken broach. The other roots were filled. On the ends of these roots that were filled with the best known gutta-percha, etc., was a waste, as you can see, little fungus growths on the end. I have ground in to show the tubuli or dentine in the one that the broach was broken off in. It is pure and beautiful, and the apex, as you can see, is perfect, while that of these other two is bad. That is a matter of fact. And that leads me to say that I believe there is something in the metal, and that is why I follow up the gutta-percha. I don't believe in filling the roots with fluid chlora-percha and expecting that to be reliable.—DR. S. B. BROWN, *Ind. So. Trans.*

CAPPING ABRADED TEETH.—Beginning with a central incisor which is badly worn away, I proceed to grind the tooth level upon its articulating surface. The idea is to make the enamel on a level plane. The edge of enamel is then bevelled with a disk or file; I prefer a disk. Two holes are then drilled, usually one on each side of the vicinity of the pulp,—assuming that these teeth have live pulps,—to a depth of about one-tenth of an inch or deeper. I have found that depth sufficient for all purposes. I then make a ferrule of pure gold, which I fit accurately to the bevelled edge of the enamel by bevelling the inside edge of the ferrule. The gold should be a trifle larger than required, and only a trifle, as I wish this ferrule to form the surface of my cap, and if made too large it will have to be ground off in finishing. After the ferrule is fitted and made of sufficient height for the thickness of the cap, I take a sheet of No. 4 cohesive foil, which I fold to thirty-two thicknesses and anneal in the alcohol flame. This I lay over the end of the tooth and press it up firmly with my finger, the foil adapting itself very readily to the end of the tooth, with the edges projecting over. I then burnish the foil lightly to the edge. The ferrule is then taken and laid over this piece of foil and pressed firmly into position with the finger, and held there while the pins, which I have previously prepared, are

thrust through the thin foil into the holes made in the teeth for them. A piece of beeswax is then taken, about large enough to fill the ferrule, warm it slightly in the hand and press it firmly into the ferrule. It is then removed from the tooth, the wax holding all the pieces in proper position. I then invest it, and after the investment has hardened I wash out the wax with hot water and flow into the ferrule eighteen- or twenty-carat gold solder until it is full. After removing from investment I try it upon the tooth, and with a corundum-stone and burnisher proceed to finish it. After it is roughly finished, I cement into place and then put on the final finish. I have been using this method for capping teeth where a durable cover is needed for some time, and have between thirty and forty caps now in service apparently as secure as ever.—DR. A. F. TOWNSEND, *Inter*.

NOTES ON IMPRESSIONS.—The fundamental idea is that the less modelling composition used in taking an impression the better, whereas I contend the very reverse is the case, and the more composition used, in moderation, in taking the impression, the more accurate will it be; and I think theory as well as practice upholds the opinion. It seems reasonable that a hard unyielding tray in close contact with the mouth does not allow the soft tissues free play, but presses them into an unnatural position, whereas a deeper tray, with its thicker lining of composition, avoids this and consequently gives a truer impression; besides, in the case of the shallow tray for edentulous jaws, there is a further objection, that in mouths where the alveolar portion of the jaw is deep, or at any rate, the sulcus between the jaw and cheek is so, the shallow tray gives no impression of the outer surface at this point, and consequently a very useful point of support is lost to the artificial plate. It is better at the beginning to take half a dozen impressions, until we are satisfied we have a correct one, than, after our piece is finished, to be obliged to re-make it because the fit is not perfect.

Fitting the tray to the patient's mouth.—In many cases after having put our patient into a comfortable position, we have merely to get the proper sized tray and we can then proceed to fill it. In another set of cases, we shall find it necessary to bend our soft metal tray to suit some irregularity in the shape of the palate, the jaws, or the position of certain teeth. The mouth

may be narrow, and the palate high roofed, or it may be the reverse; in either case we must bend our tray to coincide somewhat, in order that the composition may come into proper proximity with the parts we wish to model. In the lower jaw we must be careful that the tray does not reach too far back; if it does, we must either take another or cut a piece off the end, so that the tray may be pressed properly down without cutting into the mucous membrane covering the anterior surface of the ramus. Another part where trays often annoy patients is just on the outer side at the base of the ramus of the jaw over the attachment of portions of the buccinator and masseter muscles; it is therefore always advisable to shallow off the outer corner of the tray if it is at all deep at this point. Again, sometimes one tooth stands outside the regular dental arch, and we must bend the tray at this point to allow for it, or, especially in the lower jaw, perhaps there are only one or two teeth, such as the canines standing, and they are elongated; here we must cut holes in the tray to allow them to come through a little in order that the composition may come properly in contact with the rest of the jaw.

Having satisfied ourselves that the tray is adapted sufficiently to the mouth, we proceed to fill it. The composition being thoroughly softened in hot water we fill the tray about level with the edges, taking care that there are no creases on the surface. In upper trays it is always well to have the composition thickest at the fore part of the tray, as it has a natural tendency to slide backwards along the arch of the palate, and consequently if there is too much at the back of the tray it inconveniences the patient by sliding over the edge when the tray is pressed up and interfering with the breathing, or in patients with very sensitive soft palates, causing an inclination to vomit. In lower trays it is important to have a good thickness of composition at the back of the tray, especially where the front teeth only are standing, in order that we may get a good impression of that part of the jaw without tilting the tray backwards, a proceeding which is fatal to obtaining a good impression.

Pressing it into place.—In the upper jaw, this is done by pressing gently and firmly upwards from behind slightly forwards in order as far as possible to avoid the natural tendency of the composition to slide away over the back of the tray, and consequently to give a shallow impression of the back of the palate.

By pressing the tray up in the way suggested, we counteract to a certain extent this tendency and obtain a good model, thus avoiding the necessity of scraping the palate of the plaster cast at this part, which, in some workshops, is looked upon as a necessity. In taking an impression of the lower jaw, the most important point is to keep the tray parallel with the jaw while pressing it down. When the front teeth only are standing, we must consequently press it down over these first; it is so extremely easy to do the reverse, and press it down at the back first, afterwards giving it a tilt forwards in pressing it down on the front teeth; the result is we get a shallow impression of the back part of the jaw. This is apparently a very common error, if one may judge by the number of lower artificial pieces which one sees in patients' mouths with that peculiar see-saw motion technically called a "rock."

Removing the tray.—As soon as the composition is sufficiently hard—of which we can best judge by indenting the portion which bulges over the front edge of the tray with the finger nail—we must start removing it. This must be done very slowly, and if any force is required use it very guardedly, steady continued downward or upward traction being sufficient. The chief obstacle to be overcome is the atmospheric pressure, and the best way to accomplish this is to pass the forefinger along between the cheeks and the edges of the tray; this allows the air to creep in, and if a little traction on the tray is used at the same time the impression will usually come away without any trouble. Any wiggling motion used in removing an impression is almost certain to disturb the composition, and be transferred from the model to the artificial plate, giving rise to a "rock." In removing an impression from the lower jaw it is most important not to attempt to move at the front or the back first, but to steadily draw it bodily upwards.—J. MABERLY, *Jour. Brit. Asso.*

EDITORS' SPECIALS.

INOCULATION FROM UNCLEAN DENTAL
INSTRUMENTS.

THE necessity of clean instruments ought to be apparent to every intelligent dental practitioner. We cannot tell, without possibly microscopic research, what inoculating virus may be lurking in the mouth of the patient for whom we are working. We readily realize the dangers of inoculation of such a disease as syphilis, and perhaps may be constantly watching for visible signs in the patient's mouth. But is it necessary to have cases of this and other diseases so fully developed as to impart these visible signs before inoculation can occur? It is only through the microscope that the minute micro-organisms, supposed to produce these diseases, can be detected, and how easily could inoculation occur, unseen. Modern science teaches us that certain germs are peculiar to certain diseases and are always present in them, that inoculation of these germs into healthy tissue produces the disease of which it is the type. We can hardly realize what risks we are taking; what irreparable harm we may do unconsciously.

Some dentists will tell you, however, that they have used instruments time and again without going to the trouble of sterilizing (possibly having washed them) and no harm has resulted therefrom. We hope there has not. These dentists may be honest in their assertions yet may at some time have done irreparable harm without knowing it. Few cases return to the dentist unless the teeth are directly involved or a special request has been made for them to return. If anything of a threatening nature arises the subject visits the physician for consultation and treatment, and the dentist who may have been the direct cause of the trouble lives on in ignorance.

Two cases of this sort, supposed inoculation from the dentist's lancet, came to our knowledge sometime ago and we wrote the attending physician, Dr. Thos. Hubbard, of Toledo, O., for an abstract of them. He has kindly sent us the following:

"A young man of 24 years, painter by trade, caught a severe cold in March, 1889 (Harrison inauguration). He never fully

recovered but worked quite hard all summer. I first saw him in October, 1890. About six months after the exposure the wisdom teeth tried to come through; there was much pain; he had both lanced; they never healed; the ulcers burrowed around the roots, and laterally around the ramus of the jaw on both sides. One year later he had them extracted. The ulcers penetrated still deeper and when I saw him the ramus was almost denuded under the masseters on each side. This was the cause of his greatest suffering as he could scarcely move the jaws. He developed tubercular laryngitis in the summer of 1890. When seen the lung and laryngeal disease was not active, and the main focus of disease seemed to be in the jaw ulcers. He died of pronounced tubercular meningitis in Dec., 1890. An autopsy was held limited to the cranial cavity.

Since you are mainly concerned with the local disease of the jaws I will pass this comment.

It is not proven that he had tuberculosis of the lungs when the dentist lanced the gums. Dentists have to treat the teeth many times of tuberculous patients, often such disease being in a latent form. It is possible that the man was inoculated directly from the dentist's knife. Of course we must assume that his general system was in a state susceptible to the disease in question. We criticise the dentist for operating and then dismissing the patient. He should have inspected the mouth again if only to protect himself, and in this case he could have saved a great amount of suffering by timely treatment.

The second operation was still more careless. He must have seen that the patient was a sick man and a careful questioning would have revealed the nature of the disease to any dentist with broad education. The first operation was done by a skilful surgeon dentist, but the second by a "tooth puller" of the rankkest order. Any man of good common sense would have insisted on protection, and at least have a surgeon in counsel; but the almighty half-dollar soothed his conscience (if he had any), and he let this victim go without a word of caution, knowing probably that he would never be troubled by him again.

I recently had another case—one of latent tuberculosis—in which ulcers, apparently tubercular, were invading the gums around wisdom teeth that were crowded well back against the ramus. I applied strong antiseptics, such as lactic acid, 20% ;

bichloride, 1 to 500: and boric acid powder daily, and soon these ulcers healed.

There can be no doubt about the diagnosis in the former case; scrapings from the jaw ulcers showed bacilli tuberculosis. This means of diagnosis is always available to the dentist. He should accustom himself to such diagnostic aids. Of course they will not often be troubled by such patients returning for they soon seek the physician, but the harm to the patient is culpable.

I know of no better antiseptic for direct local application to such diseased gums than the above mentioned. Mercuric bichloride 1 to 500 with lactic acid 20% and sodium chloride 5%, applied in one mixture with cotton holder. Then give the patient potas, permanganate in deep purple solution, and pure boric acid powder to follow, for use at home."

Dr. Miller and others have given the profession at various times tabulated statements of diseases inoculated with unclean instruments which should serve as a warning. There is, however, a means of avoiding these disastrous results and it is simply to *sterilize your instruments after each operation.* L. P. B.

THE OHIO STATE DENTAL SOCIETY.

THE annual meeting of this society was held at Columbus, Dec. 1, 2, 3, and was by far the best attended of any meeting for several years past. A unique feature adopted this year by the society was an engraved pin which was given as a receipt for dues with request that it be kept in sight. It was as amusing to see the promptness with which members "paid up" as it was to see the satisfied smile of Treas. Keely when he thought of how he *didn't* have to write receipts. By vote of the society a pin of some design will be prepared for each year's meeting hereafter. The program was well prepared, but a lack of promptness in beginning sessions limited the time so much that the papers coming late in the program were nearly crowded out; being read before a "hand full of people" with no time left for discussion. Next year, however, we hope to see a change, the sessions will continue four days instead of three, and with the ever present J. R. Callahan in the chair, the members will have to assemble promptly on time or lose a part of the session. L. P. B.

POST-GRADUATE SCHOOLS.

TO RAISE the standard of the so-called mechanical dentistry has been for years a great need and we are pleased to see the present advancement in this department. The post-graduate schools of prosthetic dentistry are doing splendid work and should be encouraged. The facilities which such schools as Haskell's offer are unsurpassed, and all members of the profession who have taken instruction under Dr. H. are loud in the praise of what knowledge they secured there. The times demand a thorough understanding of crown- and bridge-work, metal-work, etc., from every dental practitioner and none should lose the opportunity offered for securing the practical instruction that is afforded them.

L. P. B.

OBITUARY.

DR. J. A. STOCKTON, who for several years has been suffering from consumption died at his residence in Upper Sandusky, O., December 13, 1891.

Dr. Stockton was well known among the dental profession and his untimely death is much regretted.

In speaking of his life *The Union* says:

"There was not a more genial man in our city, nor one more hopeful; one of the few who, when arriving at manhood, instead of casting Youth aside, retained it—all its sympathies and simplicity.

But more than this; not in one, but all things, in act and word, he more than any other in our memory, lived within a "happy medium." Amiable, a kind word for everybody; the world was a bright, wholesome world; all people good or, at least, with good intentions; misfortunes were something to be deplored and mistakes were merely accidents. Natures like his are rare, indeed; a coupling of youth and manhood, tempered with something touching sublimity, natural and not acquired.

To add up the Doctor's good qualities is but to combine them, or probably more to his praise, to look back and remember one attribute in the least deserving of censure. Besides, he was jovial, ever ready and competent to enjoy himself or contribute to the enjoyment of those about him.

He was in every act of his life a christian ; charitable, conscientious, earnest, sympathetic, and in his death we have sustained a loss which memory will revere and future years alone encompass."

Dr. Stockton was born in Licking county, Ohio, March 17, 1846 ; son of Thomas and Sarah (Rea) Stockton, natives of Washington county, Penn., and of Scotch and Irish parentage. He was reared on a farm and shared the advantages of a common school education. He entered the Vermillion Institute at Hayesville at the age of nineteen, remaining one year. In 1868, he began reading dentistry under the instructions of Dr. C. N. Swisher, of Lima, and subsequently with Drs. Moon and Hall, remaining one year with each at the same time beginning his practice. In 1876, he attended lectures at Cincinnati and graduated in 1879. He located in Upper Sandusky March 19, 1872, and built up an extensive practice. He was married December 29, 1870, to Callie S. Hoover, of Lima, Ohio, and four children have been born to them, three living. Dr. Stockton was a member of the Knights of Honor and a Ruling Elder in the Presbyterian church.

The OHIO JOURNAL extends sincere sympathy to the bereaved family.

NEW PUBLICATIONS.

HANDBOOK OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS.

By Samuel O. L. Potter, A. M., M. R. C. P., Professor of the Theory and Practice of Medicine in the Cooper Medical College of San Francisco. Third edition, revised. Philadelphia : P. Blakiston, Son & Co., 1891. Price, cloth, \$4.00 ; sheep, \$5.00.

Although the first edition of this work was issued as late as 1887, it has attained great popularity. While essentially a compilation, as all books of this class must be, there will be found in its pages much original matter derived from the writer's extensive experience. The arrangement of the subject matter is unique. A modified alphabetical plan has been adopted by which the advantages of the alphabetical order may be retained, while permitting the grouping together of agents which are closely related, physiologically and therapeutically, under the title of the principal member of the class.

In detailing the characteristics of any important drug, its physical properties and chemical constituents are first briefly enumerated, then its preparations are described; every important unofficial preparation being also noted, and all the compounds into which it enters enumerated. The physiological action is next taken up, its characteristic features being first described, then the action resulting from an ordinary dose, next that of continued doses and finally from a toxic dose. These are followed by a brief account of its antagonists, antidotes and incompatibles, if any, and a concise summary of its therapeutical applications closes the article.

Part second is devoted to official and practical pharmacy and minute directions for prescription writing.

Part third is devoted to the subject of special therapeutics. It is treated elaborately and in the form of an alphabetically arranged index to the treatment of diseases, as laid down by the most recent authorities.

The appendix contains numerous tables, comprising diagnostic hints, Latin terms and phrases, formulæ for hypodermic use, metric equivalents, specific gravities and volumes, notes on temperature, treatment of poisoning, etc.

The work is very complete in itself yet not bulky, containing less than 800 pages. The thumb index and other minor details add to its value as a reference book for the busy practitioner.

A TREATISE ON PRACTICAL ANATOMY FOR STUDENTS OF ANATOMY AND SURGERY. By H. C. Boenning, M. D., Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy; Demonstrator of Anatomy in the Philadelphia Dental College, etc. Philadelphia: F. A. Davis, Publisher, 1891. Price, cloth, \$2.50.

The work before us was prepared especially for students of anatomy and surgery. The author says it has been his aim to arrange the subject so as to make it equally serviceable as a text-book on anatomy and a dissector. It is fully abreast of the latest teachings in anatomy, and, in some directions, decidedly aggressive, as in treating of the outer layer of the muscular fibres of the uterus, and of the structure of the alveolar processes of the maxillary bones.

The author states that the book is not a compilation ; it is the result of years of practical work and a large experience in teaching. The descriptions in the text have been taken from the bone itself and the subject on the table, and are so treated as to adapt them to the student everywhere.

The work throughout bears evidence of careful preparation. It covers the field of the larger works on anatomy yet is condensed into 459 pages. No superfluous words are used, everything is stated in a clear and concise manner. One hundred and ninety-eight wood engravings are used to illustrate the text, many of them being entirely original. In size the book is convenient to handle and in many respects commends itself to the use of medical and dental students. Those in need of a work of this sort will do well to examine this before purchasing.

DENTAL MEDICINE. A MANUAL OF DENTAL MATERIA MEDICA AND THERAPEUTICS. By F. J. S. Gorgas, A. M., M. D., D. D. S. Fourth edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1891. Price, cloth, \$3.50.

The demand for this work has been remarkable and former editions have been exhausted long before the next could be prepared. To this, the fourth edition has probably been added more new matter than to any one of the preceding. The book now comprises 524 pages. Some of the new remedies incorporated in this edition are: Aristol, Bromol, Campho-Phenique, Chloralamide, Syn, Carbolic Acid, Biniodide of Mercury, Iodine Tri-chloride, Chloral Phenol, Lysol, Iodophenacetin, Microdicine, Myrtol, Pyoktanin, Salol, etc. A new chapter on Antiseptics in Dental Practice, including the sterilization of Dental Instruments has been incorporated and the results of recent investigation concerning the action of different remedies has been added to the text thus bringing it up to the present time. Although there are a number of minor defects throughout the work that should be corrected it is as a whole by far the best treatise on this branch that our literature affords and should be in every dentist's library.

BOOKS RECEIVED.

AGE OF DOMESTIC ANIMALS, being a complete treatise on the Dentition of the horse, ox, sheep, hog and dog, by R. S. Huidekoper, M. D. Philadelphia: F. A. Davis, Publisher, 1891.

SOCIETIES.

ANNIVERSARY MEETING OF FIRST DISTRICT
DENTAL SOCIETY, NEW YORK.

THE profession are cordially invited to attend the twenty-third anniversary of the First District Dental Society, which will be held at the Academy of Medicine, No. 17 West 43d Street, New York City, on January 18, 19, 20, 1892.

The essays and essayists are :

Prof. C. N. Peirce, Philadelphia, "Some Thoughts on Trans-formism."

Prof. J. S. Marshall, Chicago, "A Plea for Replantation in Cases of Chronic Alveolar Abscess."

Prof. D. R. Stubblefield, Nashville, "Pus Formation—Revived."

Dr. Calvin S. Case, Jackson, Michigan, "Borders—between the Artificial and the Natural in Crown and Bridge-work."

Dr. Norman W. Kingsley, New York, "Adenoid Growths, Thumb-sucking and Mouth Breathing, in their Relation to Irregularities of the Teeth."

In addition to the above the following distinguished gentlemen will be prepared to discuss the papers :

Drs. J. G. Garretson, E. C. Kirk, C. N. Peirce, S. H. Guilford, and Chas. J. Essig, Philadelphia ; Dr. J. Taft, Cincinnati ; Dr. J. S. Marshall, Chicago ; Drs. D. R. Stubblefield, and J. Y. Crawford, Nashville ; Dr. Thos. Fillebrown, Boston ; Drs. C. S. Stockton, and C. S. C. Watkins, New Jersey ; Prof. Chas. Mayr, Springfield ; Dr. Frank Bliven, Worcester ; Dr. F. T. Van Woert, Brooklyn ; Dr. J. D. Patterson, Kansas City ; Dr. G. L. Curtis, Syracuse ; and Dr. Chas. Heitzman, J. N. Farrar, Geo. Allan, New York ; Dr. James Truman, Philadelphia.

Several others will probably be with us, but cannot be positively announced.

We have engaged the large clinic room at the Academy, which being spacious and admirably lighted by seven large windows, affords an exceptionally fine place for clinicians and exhibitors. A large number of clinicians will be present and also sev-

eral interesting exhibits by manufacturers. Everything shown will be entirely new.

The Trunk Line Association of railroads have agreed to transport dentists (and any members of their families) to our meeting for one fare and a third the round trip upon the following conditions:

(1) That at least 100 persons, who have traveled to the meeting over some legitimate form of railroad shall be in attendance; which fact must be certified to by the secretary of the society and by the agent of the railroads, who will be in attendance.

(2) That all other provisions written or printed on the back of the certificates be complied with.

Persons deciding to attend our meeting, and desiring to take advantage of this lower rate, must pay full fare to New York, and take a receipt in form of a certificate from the ticket agent from whom he will buy his ticket. This certificate will be countersigned at the meeting, and will enable the bearer to return for one-third fare.

RODRIGUES OTTOLENGUI, *Ch'm Ex. Com.*,
115 Madison Ave., New York.

OHIO STATE DENTAL SOCIETY.

OFFICERS elected at the December meeting of this society are as follows: President, J. R. Callahan, Cincinnati; 1st Vice-President, Geo. H. Wilson, Cleveland; 2nd Vice-President, Chas. Welch, Wilmington; Rec. Sec'y, Otto Arnold, Columbus; Asst. Sec'y, Henry Barnes, Cleveland.

New members enrolled this year are: Drs. F. H. Houghton, Columbus; J. H. Wible, Canton; J. S. McCampbell, Xenia; J. F. Dougherty, Canton; B. F. Johnson, Camden; J. C. Oldham, Springfield; J. Bosart, Buckingham; L. P. Holbrook, Mt. Vernon; A. Jones, Lima; D. Haight, Coshocton; L. W. Ballard, Alliance; H. M. Kirk, Columbus; A. B. Fletcher, Columbus; C. L. Smith, Columbus; S. P. Gray, Madisonville; W. T. Jackman, Cleveland; H. F. Harvey, Cleveland; J. R. Price, Columbus; J. H. Boger, Findlay; M. H. Evans, Franklin; H. C. Brown, Gallipolis; E. Waddel, Greenfield; H. A. Hubbard, Dayton.

ODONTOLOGICAL SOCIETY OF CHICAGO.

At the annual meeting of the Odontological Society of Chicago, held in November, the following named officers were elected: President, Dr. G. Newkirk; Vice-President, Dr. W. B. Ames; Sec. and Treas., Dr. E. Noyes; Curator, Dr. L. L. Gilmer; Member of Board of Censors, Dr. E. D. Swain.

E. NOYES, *Sec'y.*

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

THE PENNYWEIGHT was the exact weight of the old British silver penny.

DIED.—WALRATH.—At Belleville, N. Y., Nov. 28th, Florence C., daughter of Dr. W. K. and Elizabeth C. Walrath, aged 2 years, 11 months and 4 days.

CANCER OF THE TONGUE.—The prevailing opinion has been that cancer of the tongue was practically incurable. The experience of a Manchester (England) surgeon is against that theory. Of 139 cases operated in there were 119 recoveries and 20 deaths.

"GREEK" TO HIM.—Dr. A. W. Harlan writes to the *Western Journal* that he doesn't know anything about mechanical dentistry. Just what his friends(?) will do about it we don't know, but suppose they will now take measures to have him transferred from the dental to the medical profession.

FURNITURE.—If you insure your "furniture" against fire, will the insurance cover your teeth? Apparently it will in London, for a householder, whose wife sneezed her false teeth into the fire, claimed four guineas for their loss. He was paid, but the company might have contested the claim on the ground that false teeth are not furniture, but machinery.

THE VALUE OF DENTAL RECORDS.—The identity of the dead dynamiter, who was blown to pieces in New York in attempting to assassinate millionaire Russell Sage, will probably hinge on the diagrams of fillings kept by Dr. Edward Coggins, of Boston, the dentist, for ten years, of the missing stock broker Henry L. Norcross, of the same place. He inserted nine fillings for Norcross and the same have been found in the teeth of the bomb thrower.

A REALLY DIPLOMA MILL was unearthed in Cincinnati last month by a reporter for the *Cin. Com. Gazette*. It was called The Medical University of Ohio and run by one Dr. Van Vleck who is in jail awaiting the action of the grand jury. As a result of the exposure the different medical colleges and societies of the State are working together to secure the passage of a new medical law. In regard to a new dental law the Odontological Society of

Cincinnati, has taken the initiative towards helping the State Dental Society in its efforts for the bill introduced in the last legislature.

At the regular meeting of the Odontological Society of Cincinnati the subject of the recent exposure of the Medical University of Ohio by the *Commercial Gazette* was brought up for discussion before the members. It was the general opinion that in this matter the *Commercial Gazette* had exhibited the true journalistic enterprise, and that the managers of the newspaper are entitled to the thanks of the dental profession of this city and of Ohio.

"Resolved, That in view of the recent disclosures by the *Cincinnati Commercial Gazette* of the fraudulent issue of medical and dental diplomas by the so-called Medical University of Ohio, we regard the present an opportune time for the dental profession of this city to take measures for obtaining an efficient law for regulating the practice of dentistry in Ohio.

"Resolved, That the Cincinnati Odontological Society shall arrange to co-operate with the Ohio State Dental Society and other dental societies of the State in asking the Legislature to pass the bill known as an 'Act to regulate the practice of dentistry in the State of Ohio,' which was introduced last winter."

HERE IS SOME MORE about dentistry in Mexico. S. T. N., who takes issue with our item in the December JOURNAL, writes, that while on a pleasure trip through Mexico he

"called on the '\$40,000 in a single year' dentist. With an air of plenty, he informed me that the city was there and at my disposal for a location. Assured him I was not seeking a location, which was true. I wanted pleasure and recreation, but naturally surveyed the dental field as any one interested in dentistry would do. I'll not express my opinion of him, but can quote the remark of an agent of the Thomson-Houston Electric Company who called with me. 'God, didn't he fill us full of wind.' Dr.—40,000 \$—was at leisure the half hour I was with him.

The dental field in Mexico is well taken by men who speak Spanish.' I had a chance to know, for my trip extended the length of the republic which included a 600 mile horseback ride and visits to many of the most prominent cities. About one *Peon* in 300 will know what you mean, when you say *Dentista*, and a feeling of disappointment comes over one unless he answers, *No salve*.

I met several dentists in the republic and each of them knew that young fellow at San Luis Potosi. His article on dentistry is considered a slick write up by a fine newspaper correspondent engaged for his eminent fitness. One dentist in a city of 25,000 without competition, makes from \$150 to \$200 per month, and spends it carefully to pay for his living. Another, in a city of 40,000, makes a bare living; he is a Spaniard.

Any dentist here with a business of \$60 to \$100 a month is well off, compared with the dentist in Mexico. Stay at home where the people need no education unless you feel 'called' to do missionary work. I would rather stay in the States and enjoy my life than to charge by mistake \$10 too much and perish at the hands of some Fandango dancer.

In a city of 10,000 I bought \$100 worth of brand new S. S. White and Justi dental instruments for \$20 Mexican money. Owner *busted* and put them up for board."

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CONTRIBUTIONS.

WHAT CAUSES VARIETY AND MODIFICATIONS IN
THE CHARACTER OF DENTAL CARIES?*

BY G. S. JUNKERMAN, M.D., D.D.S., CINCINNATI.

A PAPER upon this subject can scarcely possess the character of originality, but will subserve the purpose more of bringing out, before such a body as this, the points for discussion.

There is no longer grounds for disagreement among the profession upon the causes of dental caries, and knowing the causes of the disease a study of the character of the agents producing it will reveal, to a considerable extent, the cause of variety and modifications in the character of dental caries. We may sum up the cause of dental caries as acids and fungi. Although the investigations of Miller, of Berlin, have confirmed this hypothesis, yet in the minds of many practitioners this conclusion has been accepted for many years past. The chief agent, without which there would be no dental caries, being acids and fungi, the character of the process of the caries must depend upon the

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

character of the acid and fungi producing it. The process of dental caries consists of the decomposition, or the solution of the inorganic matter of the tooth by the acid, and the decomposition by the fungi of the organic structure of the tooth. Assuming that the fungi are alike in all cases, we know the acids to be different and upon the character of this acid will depend the character of the caries. The character of the carious process will differ as differs the degree of concentration of the acid, the quantity and the degree of persistence with which it remains at the seat of the disease.

The character of dental caries will be influenced much by the order in which decomposition of the tooth structures take place. If the fungi decompose their part of the structure first we will have a caries of rather a hard consistency; a leathery tendency to a softer consistency of the caries will result if the acid dissolves or decomposes the calcareous matter previous to the action of the fungi. There can be no doubt that the consistency of dental caries is dependent upon the time of action of the acid and the fungi.

Quality of tooth structure modifies the character of dental caries. Whatever the character of the agent may be, whether concentrated or diluted, whether persistent or intermittent, or in whatever stage of caries the case may be, the well organized or perfect structured tooth will show a slower process of disease than the tooth of weak structure. To further elucidate this principle and to present it to the mind in the extreme; when the chemist wishes to dissolve a substance in an acid, or any other menstrum, he pulverizes the substance to produce rapid solution. This comminution of the substance brings about a condition whereby a larger extent of surface is presented for contact with the menstrum, and it is a known fact that rapidity of solution is in proportion to the extent of surface. This principle may be applied to the process of dental caries. If the enamel prisms, or dental tubuli, are loose in structure there is a larger extent of surface and rapidity of caries is increased, and though imperfection of structure may be invisible to the naked eye this ever watchful agent of dental caries has its headlights and reflectors into all the alleys and byways of imperfect development and is always ready with its regiments of sharp-toothed soldiers to take up its camping ground upon any unoccupied tracts.

Another circumstance which modifies the character of dental caries rests in the fact of the difference of chemical structure between the enamel and dentine. The lime salts of enamel are in excess of those found in dentine, so that an acid may be found strong enough, and in sufficient quantity to dissolve dentine, while the enamel will be little or none at all affected. Dental caries arising from such a condition would find explanation in cavities of considerable depth and small external openings. Such cavities would be the result of weak acids and long-continued action. Caries with wide external openings and superficial in character would result from sudden strong acid reaction and short duration. In both these cases the character of the dental caries is not due to the character of the agent producing it, but is mostly due to the difference in chemical structure of the enamel and dentine. A condition which characterizes the process of dental caries is a sensitiveness or a lack of sensitiveness. Sensitiveness accompanies that process of dental caries where the acid of the disease operates more rapidly than the fungi. Such is the soft varieties of caries. It does not then follow that all soft caries are sensitive, for to produce this condition the process of the disease must be such that the dental tubuli are left almost so, or entirely intact. A lack of sensibility will attend that process of dental caries where the fungi are the most rapid in their action, destroying the organic tissue or dental tubuli and leaving the lime salts, producing the hard variety of caries. From these principles we would deduce the conclusion that the very soft and the very hard varieties of dental caries would be free of sensibility, and that we could look for sensitiveness in the semi-hard varieties of dental caries.

Color is another characteristic feature of dental caries. It varies from white to black. The responsibility for the color rests much upon the nature of the agent, but not entirely so, as deposits upon the teeth and habits of the individual in general, have some influence upon the subject. For example; the tobacco chewer may be afflicted with the white variety of caries, and yet the color may be black from the infiltration of nicotine. The black variety of caries may lose its characteristic color from the introduction into the oral cavity of a variety of decolorizers.

There passes before the eyes of the practitioner a daily panorama of varying changes in the character of dental caries; there

is slow caries and rapid caries; caries deep in character with small external opening; caries with large external opening and superficial in character; caries hard in consistency and caries soft and without form; caries that are painful and that which lacks sensibility; caries with color and caries without color. These qualities combined gives character to dental caries and the absence or presence of one or more of them is what produces variety and modifications in the character of the process of dental caries.

DISCUSSION.

DR. J. R. CALLAHAN, Cincinnati: I would like to ask Dr. Junkerman a question. He referred to the fungi, saying that he assumed that those present were all alike instead of saying they were alike.

DR. G. S. JUNKERMAN: I said I assumed they were all alike, for we do not know sufficient at present to distinguish between the various fungi and the degree or kind of caries that arises from them. That will have to be discovered by further investigations. We know more about the acids than we do about the fungi and their action.

DR. GEO. H. WILSON, Cleveland: There was one remark made by the essayist that seems to me a little broad, and one which we might take exception to if I understood him correctly, and that is cavities having a small opening would be of slow decay. It seems in practice we see the most rapid form of decay in that condition, that is, the dentine is destroyed much more rapidly than the enamel of course, consequently we have rapid decay on the inside, just a mere shell of the tooth. When we break into that cavity we may have a bad case on hand. I was very much pleased with the paper, but I think we sometimes make statements that are a little broad.

DR. C. M. WRIGHT, Cincinnati: I have very little to say. I was pleased with the manner of presentation of the paper and its conciseness, and consider it a valuable one for our archives. I was somewhat amused at the beginning of the paper by the statement of the gentleman, that there is no dispute in the dental profession as regards the etiology of dental caries. If he had been in the room last night and heard the discussion between Profs. Taft and Smith he might have changed his paper somewhat. I have no bones to pick in regard to the paper, nor is

there anything that I can quarrel with, consequently I am out of my element.

DR. H. A. SMITH, Cincinnati: I regret I was not present when the paper was read. I missed it, therefore I cannot discuss it, except the point raised a moment ago by a gentleman in reference to why we had in some conditions of caries quite a spreading variety, and the other varieties had penetrated directly in the shortest direction towards the pulp. If the dentine is of uniform density, if it is perfectly alike throughout the entire structure, it is difficult to explain why caries assumes this form, while in other cases it is directly in a straight line or in the direction towards the pulp. May we not assume that when we have spreading caries the dentine is not homogeneous; that we have defective territories or inter-zonal spaces as they are called? When the active cause reaches that defective territory it has modified or changed the direction of the progress of the disease. Would that be an explanation of all these cases? We find a variety of caries spreading under the enamel, the inter-zonal space, which is more susceptible, more predisposed to caries than dentine proper in the body of a tooth. I would like to have the gentleman refer to these anomalies, to give us his explanation of them since they are not clear in my own mind.

CARE OF THE TEETH DURING PREGNANCY AND LACTATION.*

BY E. H. RAFFENSPERGER, D.D.S., MARION, O.

THIS may seem rather a peculiar subject, but it is one that has caused no end of wrong and anxiety, both to the patient and dentist. It is no longer a mere matter of doubt and speculation that the teeth are seriously affected during this trying period of a woman's life. In the preparations incident to a wedding now a-days, the dentist is consulted nearly as often as the dressmaker, and wise is the woman who is so thoughtful of the possibilities of the future. The old saying "a tooth for every child" is only too true, and matters seem to grow worse instead of better the longer we live.

A woman with poor teeth is rather the rule than the excep-

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

tion. One-half of the married women of to-day will tell us that they had good teeth until the birth of their first child, and that their teeth have been going to ruin ever since. Whether this destruction of the dental organs at this time is due to the privation of the tooth building substance, or to an extremely acid condition of the oral secretions, or both, I am not able to say.

Any physician will tell us that his skill has been taxed to the utmost and his patience sorely tried, in his endeavors to relieve a pregnant woman of some real or imaginary pain and ache in her teeth and jaws. Indeed, these pains and aches seem to be a usual accompaniment to pregnancy, nearly as much so as the persistent vomiting and are about as well understood by the average physician.

And the skill of the dentist is likewise baffled. For this reason I have chosen this subject, not with the view of displaying any knowledge of it, but with the hope that it may open the way for a thorough discussion in which some of the older and better informed members of this intellectual body, can bring out some of the many points which no doubt I have overlooked.

We can all testify that the teeth a pregnant woman are far more sensitive than otherwise, and that the woman herself is unable to bear the amount of pain which otherwise would hardly be noticed; and on the whole she is rather an undesirable patient. Still she will call on us and will continue to do so until the Almighty creates a new order of things; but with a little care and forethought on our part, we can save her a vast amount of pain and make for ourselves many friends.

A woman in the early stages of gestation presents herself to us. It does not require a practiced eye to detect her condition, often she will tell us. She desires to have her teeth examined; she is unusually nervous and her teeth very sensitive, abnormally so. Several teeth, say, are found containing cavities—what is to be done with these cavities? shall we fill them with gold and dismiss our patient, only to have her return in a year or so with all our work lost? I say no, most emphatically, and I think there are gentlemen here who will bear me out, when I say it is folly to fill the tooth of a pregnant woman with any idea of permanency.

In the first place she is unable to stand the pain of the preparation of the cavity incident to the introduction of gold, or any

of the permanent fillings; and if she were nature would not assist, as all her attention must now go to the new life that is within, and if we cannot have the co-operation of this venerable dame, our work is generally for naught.

All we can do, and I am sure it is the best plan, is to fill the cavities with any of the temporary fillings. By these I mean, the plastics, which do not require that the cavities shall be so perfectly prepared, as for any of the metallic fillings. These temporary fillings are inserted with very little excavating and pain, at the same time answering the same purpose as the gold. We can dismiss our patient for the present, and after her child is born and weaned, she can have her teeth filled permanently.

She may tell us that there is a sour and bitter taste in the mouth all the time, and her teeth are "on edge"; and that the act of brushing the teeth is attended with pain; the necks of the teeth being especially sensitive.

These conditions are due to the acid character of the secretions, and can be remedied and largely avoided by the free use of lime water as a mouth-wash and of prepared chalk—this latter most valuable adjunct to the dentist's drug case, being packed around the teeth several times a day.

The entire system seems to cry out for calcarious substances, and women will tell of their morbid craving for such substances.

The exquisite sensitiveness found at the necks of the teeth can be governed and cured if the chalk fails, by a little nitrate of silver, pulverized, and applied by means of a sharpened stick, first moistened in carbolic acid. This same remedy or application can be used with success on the "canker" sores, so often found in mouths of our patients.

As to the extraction of teeth for pregnant women, much has been said; some will tell of the dire results therefrom—that it is safer to allow the woman to suffer the "torture of the damned," than to attempt to extract any teeth for her. I contend that if there are any teeth to come out, they ought to be extracted at once, as the momentary pain of the operation is not so trying as the continual aching. I have extracted teeth for women at all stages of gestation and have not heard of any bad results. One writer sums the whole matter in very few words, he says "that if the extraction of a tooth would produce miscarriage, our offices would be filled all the time with women anxious to have a tooth extracted."

As to the prenatal influences on the child, I have never heard of a child being "marked" with a pair of dental forceps or dental engine. So I do not think we have anything to fear from that source. But I do most firmly believe that when a woman's nervous system is broken down with the toothache, the nervous system of her child will also be seriously affected.

We should instruct our patients in the use of such food as will go to the formation of tooth or bone substance or structure. What the child-bearing women of to-day lack is the good old-fashioned food of our grandmothers, well cooked, and plenty of it, such as corn bread, bran bread, mush and milk, etc.

I have frequently had women tell me that their grandmothers lived to a ripe old age and did not have a decayed tooth in the mouth.

The manner of having children has not changed, but the mode of living has made rapid progress towards the worse.

The same care should be given to the teeth during lactation, as there is the same drain on the system.

DISCUSSION.

DR. H. A. SMITH, Cincinnati: I fully agree with the essayist that this is an important subject. But if true as stated, that the teeth of pregnant women are predisposed to decay we certainly should be able to give good and intelligent reasons for it. It is supposed that during gestation that the structure of a tooth changes from its normality. The statement that there is interstitial change in the relation of the matrix or organic portion of the tooth and lime salts; that the lime salts are perhaps diminished in quantity, has not been proven. If this were true, would it account for the beginning of caries during the period of pregnancy? Caries begins upon the enamel of a tooth. Could the enamel, where we have such a large proportion of inorganic material, be changed interstitially in the period of pregnancy? If it is not true that we have either a chemical or physical change in enamel or dentine during pregnancy, we must look for an active cause of caries in some other direction. It must be due, then, to the character of the secretions of the mouth. If caries, as we believe, begins by a fermentative process, whereby an acid is formed, then the secretions must be of a nature to promote fermentation in the oral cavity. Does caries attack sound teeth

more frequently in pregnant women than in those not in that state? We are not quite prepared to answer that. But if teeth have been filled in the mouth prior to pregnancy and this condition supervenes, I think it is possible that we have a recurrence of caries about these operations more frequently than we would have in the absence of this condition. That, of course, must be accounted for on the supposition that the secretions are not normal, that they invite those conditions which induce caries.

DR. J. TAFT, Cincinnati: I am not prepared to controvert the common opinion in regard to this subject. We very frequently, almost universally, hear it said that the teeth during the time of gestation are more susceptible to the influence of decay than they were before that period. Then after that period has passed they return to their original or more normal condition. I do not mean that this is an abnormal condition, but they return to a more favorable condition. My impression is, and I think the experience of every close observer will warrant the conclusion, that the teeth during the time of gestation and lactation do decay more readily than they did before. As Dr. Smith says, it becomes us to ascertain the cause, if possible, of this condition. I take it that this is found in perhaps two or three things. We are brought to this conclusion by observation; though not as many experiments have been made in this line as there might have been. The analyses both during these different periods of life might easily be made by some one who would take it up and carry it on and determine some of the facts to which reference has been made, especially with regard to the change in the relative amount of constituents of the dentine. I have no doubt there is a change in the relative amount of the organic and inorganic constituents of teeth. That expression is subject to criticism, but we all know what it means, and with it we may rest satisfied for the present at least. I do not see how there can be any structural change in the tissue. There may be a change in the relative amount of the organic and inorganic material by one or the other being withheld. Then there would be a change in the relative amount of these materials.

It has been assumed by many, and the opinion is largely entertained, that in the demand upon the nutrient function of the body the inorganic material of the teeth is not as liberally supplied during the period of gestation and lactation as before.

It seems a rational thing, and perhaps it is supported somewhat by analogies which we might trace as well. I am hardly able to explain the phenomena which perhaps every close observer has realized in this particular. It is often found that teeth prior to this period are firm and hard and not predisposed to decay; perhaps not decayed at all, but soon after or almost cotemporaneous with the occurrence of gestation, the teeth begin to decay. They are also more sensitive. Observation teaches us that during this period more than at other times, the teeth are likely to decay, or to take on a higher degree of sensitiveness than they did before, clearly indicating that some change had taken place. Is that dependent upon a change in the relative amount of the constituents of the tissues, or may it depend upon something else? It is clear that there is a change. Some teeth are more resistant, are more hard and dense, and but little disposed to decay. One of the explanations of this is in the change of material that is found in connection with the disturbance of nutrient function, and causes also an excited nervous irritability in the tissues and in the body as a whole, because there is a higher state of nervous excitability under this condition than prior to or after it has passed by. Another is, a vitiation of the oral secretions; a vitiation not only of the oral secretions, but of the gastric secretions as well. The nausea of this period indicates much. This nausea does not occur without some gastric disturbance, and the gastric secretions and the secretions of the mouth will also be influenced manifestly by the condition that brings about the nausea. The secretions of the mouth are not only vitiated, as can evidently be ascertained by analysis and close examination, but the gastric juices are also vitiated. Indigestion accompanies this condition of nausea which is very unfavorable. It is unfavorable to the proper performance of the nutrient functions. If there is indigestion, and there usually is, there is impairment of the process of nutrition, and not only will one or two tissues of the body suffer, but all that receive nutrition will suffer as well. The teeth, therefore, will suffer on this account from a want of nutrient supply. It has been stated that there is a demand made upon the nutrient function of the body for an increased nutrient supply during gestation, and that in proportion as this new demand is made, the tissues of the mother will fail in receiving their proper supply. I have no doubt this will occur in cases

where the digestion and the assimilating power are not strong, where there is not proper exercise of the body. There are no doubt cases in which this function is so well performed that there is no general impairment experienced anywhere in the system, but in those cases enfeebled in any wise or not strong, they would necessarily suffer, and especially so if these interruptions in the digestive and nutrient processes were set up. Under these circumstances there will be more or less a deficient supply in the nutrition of the various tissues of the body and of the teeth as well. It may be said, why don't other tissues of the body suffer as well as the teeth? If closer attention were given this would be found to be true. It is true in many cases that there is a high degree of nervous irritability which exists then and does not exist under other circumstances, or did not exist before. If this be true, to what are we led in the way of a remedy? We should simply avoid these things that would disturb or impair proper function. If there is enfeeblement in any wise, tone up, strengthen, support the system and aid the nutrient processes, so that a sufficient supply may be made to all the structures of the body of both the mother and the fœtus as well. Also protect the mother during this time as perfectly as possible from all irritation, from all disturbance both mental and physical, and have her maintain the best possible surroundings and conditions for the carrying on of that great and important function that is being carried on in her body. This is a very great and important matter, and great care ought to be exercised for the mother during the time of gestation and lactation as well, because some impairment is as likely to occur during the period of lactation as during that of gestation. Careful attention is needed here in the way of giving proper food, having the system in the best possible condition for digesting and assimilating it. We should have the mental condition of the mother in as perfect a condition as possible, free from all exciting and disturbing influences, free from grief and over-joy, free from any perturbations or excitements of the mind that would tend to destroy the equilibrium or the balance of the various functions of the body. When that is done, about all is done that can be, except the local treatment which was mentioned in the paper. This is a mere surface matter. The matter of keeping the mouth in as healthy condition as possible by local treatment, the matter of attention to the

teeth, relieving them from great disturbance from aching or from diseases, and filling the cavities of decay with the least possible disturbance to the patient, are all clearly indicated. These things constitute the principal treatment during the time of gestation and lactation.

DR. A. O. RAWLS, Kentucky: I do not believe I can contribute anything of interest to this subject. There is very little to be said beyond what we have heard advanced by authorities on kindred subjects. I am somewhat inclined to doubt the theory or statement advanced by Dr. Smith, that there is no difference at any time between the organic and inorganic substances. In the first place it does not seem to me to be consistent, even though I cannot prove by the aid of the microscope that there is a difference between organic and inorganic substances. There are a great many things we cannot prove that we really know to be so. It is said that there is very little, if any, nutrition between the terminals of the nutrient current as it is known to-day to the microscope, and yet we cannot perceive how tissue can be made at those points where apparently there is no nutrition or circulation of the nutrient current, and yet it is so. So it seems to me that when there is a disturbance, an aberration of the function of a tooth substance from any cause, whether it be lactation, gestation, or what not, there must be a change in the amount of the assimilation. We could not have disturbances without that. My idea about that is, that the tooth loses to a certain degree, not exactly its assimilating property, but the amount of substance that it formerly had to supply the organ particles as they are passed off. You say there are no absorbent vessels in the dentinal tubules; nevertheless there is nutrition, and I have believed of late years that there is a disturbance of the nutrient supply to all parts of that tooth, either the dentine or the enamel. Now if there be that condition, and if the enamel itself is taken into the nutrient circulation, if that current of nutrition has been at all interfered with by any process, we are liable to have a weakened condition in the tooth substance, and there is liable to be a deficiency of the chemical constituents of the inorganic or organic material, otherwise we could not have this want of nutrition where the microscope fails to find the current, the canals, or the directions by which the nutrient supply goes to the different parts. Wherever we fail to find out

that, I believe beyond there are those canals or some means by which this nutrient supply is kept up which the microscope cannot see. It does not seem to me to be reasonable to believe anything else. I believe that this current is kept up between the enamel of the tooth and the end of the current. I believe there is a difference between the aged and youth, and between the periods of gestation, lactation, and other periods in the life of a woman, that makes it more easy for any acid or alkaline condition, as the case may be, to affect a tooth. It is true where the enamel is not entirely broken away, if we go above that we might not have decay, yet underneath the enamel we may have a weakened condition of the enamel itself. I believe that within the substance of the enamel that there is just as much life in it comparatively as there is in any other part of the body. I do not believe we have a thin line around us, or a thin skin without more or less life in it. We all know that the skin appendages must have nutrient supply to keep them in action, otherwise they come off the same as the condition in catarrhal inflammation. They are all thrown off, they cannot exist in different parts of the body, they must have life. My finger-nails have life in them. They must have nutrition or they would not grow; therefore, while I do not believe there is a disturbance from these conditions, there is, I think, a lessening of the nutrient supply from some source by some reason or other to the tooth of the mineral constituents. We know that in the plastidule the earthy matters are grown to form a higher type of life. We know that the higher the type grows the more lime salts it would need; so it is with the foetus in the mother's womb. It is a large plastidule, it has no mineral substance in its body, and there is a greater demand for that special material on the part of the child than there is for any other material. Therefore the current of nutrition that carries this substance to be assimilated, or rather the demand of that particular portion of the body for lime salts is so much greater that it is taken in large quantities, and probably thus deprives other parts of the body of their original amount of supply. We have no absolute means at our command of telling just exactly how this is brought about, nor is there any special means of proving it. We have to grope more or less in the dark in these cases. We cannot reason as well upon this subject as we have on many others which we know just as little about, yet we know to be true according to our clinical knowledge.

As to the means of treatment, that portion of the subject has been touched upon by Drs. Taft, Smith, and the writer of the paper. We forget in our eagerness to be useful to mankind, and especially with women in this condition, that they are not the masters of the situation always. A woman cannot be pleasant under these circumstances. She cannot have a happy frame of mind, a calm demeanor and good habits at all times, while she is in such a condition if she would, and in nine cases out of ten they cannot attend to their daily duties. In some cases they cannot take proper care of their children, do their duty and keep their frame of mind which Dr. Taft speaks of. It is an utter impossibility. The mental anxiety attending this condition is considerable, and we cannot break in on the natural tendencies or proclivities of the mind of the mother, or the tendencies of physique, when she is in that condition; in other words, we cannot break into those conditions which seem to be natural to that condition of the body.

With regard to the use of local remedies for the treatment, we might possibly help things by advising the use of a supplemental diet, but the question arises whether this diet will be assimilated or not. Nine times out of ten, I am certain, in which you can use all of the means possible for improving the condition of the body, that the patient will be just as well off if they hadn't used local remedies and supplemental diet at all. What is given will not be assimilated or taken up. We want a condition to assimilate the substances that are taken.

DR. J. TAFT: I fully agree with Dr. Rawls in his statement that persons are not always masters of the situation, all I intended was simply to say that the best should be done under the circumstances. Many of us know that much more can be done than is ordinarily accomplished, that prospective mothers are subjected to annoyances unnecessarily, and a great many things can be avoided if care is exercised. That is all I plead for, that the best condition shall be established and maintained. I recognize the periods of excitement and of stress of mind that necessarily exist in some cases. With many women these conditions are not present. After all it should be our aim to free such persons from all irritability, from all the embarrassments possible, and then trust to Providence for the rest.

In regard to food, we have a lesson in the kind of food that

is so anxiously sought many a time by the patient. You know oftentimes that one article or another of food is anxiously desired, and perhaps it is wise that it shall be given or had by the patient. It will be said that this is subject to certain conditions and variations. This is very probable. After all, if the best possible physiological condition is maintained, there will be the least possible embarrassment in connection with it.

DR. C. M. WRIGHT, Cincinnati: I was very much interested in listening to the paper and the discussion on it. It seems to me that wherever there is life, it must bear some relation to nutrition, and that relation means not only the reception of nutritious material, but the giving off of waste and eliminating certain forces in the way of heat, etc. The relative vitality of a tooth is a question that we cannot discuss at this time. There is one point, however, and that is—a tooth bears a certain likeness to bone, which has been referred to by both Dr. Smith and Dr. Rawls in their remarks. The question is whether the chemical relation between the lime salts—the mineral, and the animal matter, is fixed or not. Some French experimenters claim, after making careful examination and analyses, that they found a certain per cent., let us say approximately of about 30 per cent. of animal and 70 per cent. of mineral matter in normal bone. They fed the animals (pigeons, rabbits, etc.) on food from which the lime salts were carefully excluded. After starvation which followed the exclusion of the proper proportion of lime salts, chemical analyses were made, and the quantities remained the same relatively; therefore they made the statement that it was not a *mixture* of lime salts and animal matter but a chemical union, and that the same results followed starvation from any cause. Removing the nitrogenous substances from the pabulum, and feeding them on non-nitrogenous substances, the bone substance starved, but the chemical proportions remained the same. This has been studied by Charcot and other French writers. How is it then that young bone is soft and pliable, and old bone brittle? Has not old bone more lime salts in it than young bone? No; it is because of the more active life and greater nutritive capacity of young bone. It is more active in taking up nutriment and eliminating waste, and not because it has less lime salts, that we find that it knits more readily after fracture.

I was so interested in this subject that years ago I wrote to

Dr. Miller, of Berlin, asking him why a tooth this year could be soft and next year hard, and whether it was due to a change in the relative amount of lime salts?

Two or three years ago Dr. Kirk made the statement (he had control in some way of the diet at a Children's Hospital), which I give loosely, that children upon entering the hospital were in such a condition that he could cut away the dentine of their teeth very easily. They followed a certain diet for a year and the teeth became flinty, so that fire would fly from the excavator. The inference was that this food containing lime furnished a greater supply of lime salts, which was taken up by the living matter of the teeth. Clinically we *feel* a difference with our excavators between soft and hard teeth. We have touched teeth that have seemed soft and not to have had a very large supply of lime salts, while at other times we have touched them and found the opposite condition. The theory advanced seems to be against our clinical knowledge. I am in the habit of teaching nursing mothers that by supplying them freely with lime salts, their children's teeth will improve in quality. It seems plausible though I am not certain that it is true according to theory. This subject is of considerable interest, but we have no positive reasons why we do thus and so. It seems to me that we do successful things in an entirely empirical way sometimes.

DR. C. R. BUTLER, Cleveland: I am glad Prof. Wright referred to the condition of the bones and tissues of the child and that those of the person more advanced in age. It is a recognized fact that in the child, not only so far as the osseous structure is concerned, but in the whole make-up, there is an activity and elasticity which we do not find in the aged. It is not because there is a greater amount of the lime salts in the bones of the aged than in the child, but that the vital forces are carried on in such equipose. The nutrition, waste, and repair go on so rapidly that activity and elasticity follow. This is not the case in the aged. It is a recognized fact in physiology that the blood vessels become stiffened and even calcific matter is found present which results in destruction. We do not find that so in the child, because there is vital power enough to keep the flow going on. We have cases where the skin and peripheral surface become, as we say, dead, because the current does not flow around these little points; there is a lodgement of the waste material; it is

not eliminated, but lodged on the peripheral surface, therefore we get what we commonly term a "blocking-up."

He speaks of the theory or supposition we have been laboring under; that the teeth do become solidified or calcified in the young subject; that they are easily cut. I recall the statements made by Dr. Kirk, that clinically we know that the young subject's teeth seem to cut away very readily, while after a few years—say four or five years—they are very much harder. Have we really been working in the right direction, or have we the right conception of what causes these different conditions? There are certain conditions during the period of gestation and lactation which are commonly observed, but just what causes them I am not able to state, nor am I satisfied with the statements that have been made with reference to them.

When I saw this paper on the program I was in hopes it would bring out some new features. There is a paper which has been prepared for another society on the same subject by a gentleman in Cleveland which will probably be read next week.* I hope he will have something new or better to offer in this direction than has been given heretofore.

DR. C. H. HARROUN, Toledo: There is one point which has not been spoken of either in the paper or discussion, and it is that which relates to the extraction of the teeth of pregnant women. Does it produce any bad results? Physicians either actually give the lie to what they believe, or else they tell the truth. They often come to me and request me not to extract teeth for patients that are pregnant, for fear of producing a miscarriage. I do not believe in that theory. When such patients have presented themselves to me I have extracted their teeth without any ill-results. I have never known a case to be followed by unfavorable bad results, and I have been practicing for thirty years. Do we have marks or impressions produced upon the infant through operating upon the teeth of the mother? That is a question which physicians look to a great deal. Our own mothers believe it. We see disfigurements of the child after it is born, and the mother declares that violence was produced at a certain time.

I removed quite a number of teeth from an old lady whom I did not know was pregnant. She was quite a strong, stout

* This paper appeared in the January OHIO JOURNAL, page 19.—ED.

woman. I noticed one thing which attracted my attention. Every time I proceeded to extract a tooth for her, she would throw herself back as if in a spasm. Sometime afterwards the midwife came to me and said, "Do you remember extracting some teeth for a certain lady?" Yes, said I. "Well, she has given birth to a dead child, and it is a good thing it was still born." Why? "Because its little mouth was torn to pieces, and its mother stated at the time she had the teeth extracted that it had a tremendous effect upon her." She became restless, could not sit still, and she threw herself into a violent spasm every time I attempted to extract a tooth. I did not disfigure the mouth at all. The roots of the teeth that were broken off were removed, leaving the mouth in a good condition.

RELATIONSHIPS.*

BY H. H. HARRISON, WHEELING, W. VA.

HOW WONDERFUL is the law that binds together all created things and yet in such a way that it does not destroy the identity of anything.

The earth and atmosphere contain the elements which enter into the formation of all organic or inorganic creations. The law which holds together and controls organized matter is known as life, while the law that controls matter without life is known as accretion.

The higher principles—life and accretion—which have the power to draw and select for their own growth and development the various elements in the form of atoms, possess an inherent quality or characteristic that, to say the least, is phenomenal, and probably will remain so to the end of time.

To observe the law of relationship and see how one order of creation is dependent upon another we will select the highest type of created objects—man.

The Bible says: "Man is fearfully and wonderfully made," and the anatomist and physiologist must necessarily agree to the Bible statement. And yet what is man when the life is removed but a bundle of earthly atoms, water and gas, selected and brought together by the action of that inscrutable law of life.

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

How this life-principle can select and appropriate the different elements must always be answered by—I don't know. But as to the elements themselves we do know.

We know, first, that all the supply for the human body comes through the vegetable creations, drawn up from the earth and imbibed from the atmosphere in the proper proportion to suit the requirements of the body.

Now, when the power that selects these elements dies, or leaves the body, it is but natural that they go back to their original state. This being true, there must be a law governing this process with active agents to perform the work.

This we know by experience to be true and the same elements that entered into our body may come up again through the vegetable life and assist in the formation of another human body. And so the elements are going around in a circle as the earth, the planets and stars go around in their circular orbit.

These elements that go to form the body, as before stated, are of the quality to establish a well-formed, healthful organism, but do they always do so? If not, why?

By the ingenuity of man himself unwarranted selections are made, and that which nature designed to be used is laid aside and the body fails to get the proper proportions; as a result the organic structure of man is weakened, and as a final result, disease follows. The term, disease itself, is suggestive of this, for it means not at ease, showing the improper relationship of matter.

When our bodies are not properly nourished, when poison is introduced, or when wounded, nature sets up a restorative process, and pain is the result. Pain, then, is an indication of improper relationship and is not found in the body where physiological law obtains, save in one state, which is that of parturition.

We all know the body is subject to pathological conditions and all brought about by faulty relationship. The diseased state of the teeth and associate parts is due to the same great law.

We are aware that in the etiology of disease we have the predisposing and exciting causes. But when asked for the cause of caries, or rather what it is, our text-books come to our relief and say: "Caries is a chemical decomposition of the earthy salts of the affected parts"; concise in one respect, and very vague in another.

The predisposing cause is left out and yet without it we would never have decay of the teeth at all. We can say truthfully caries is the disease, and the cause is defective nutrition.

Let us get at it in another way and say caries, the disease, is caused by imperfect assimilation, and the operation of destruction is a natural law removing dead or effete matter from the living body. The first is a violation of natural law, while the second is a fulfillment of the same law, and is naught but the tearing-down process, mentioned before, when all dead tissue is dissolved and returns to its original state—"Earth to earth and dust to dust."

The great aim of dentists in the past has been to prevent the secondary cause of caries, leaving the primary cause severely alone. And while the action is perfectly justifiable and commendable in arresting the progress of disease, yet we are not doing all we should or could, in urging our patients to fortify themselves against the violation of this great law of nutrition.

General practitioners of medicine have not the opportunity to observe the great destruction brought about by the want of better nourishment of the bony system that dentists have. And hence, we ought to speak with no uncertain sound.

Where we find teeth weak and enfeebled there is also a correspondingly defective development of all the bones of the body wherein is developed, as a result spinal curvature, crooked limbs and a general nervous disturbance.

It is very much the same with the human body as it is in architecture. If the foundation and frame-work be badly executed and made out of poor material no amount of elaboration by paint or finely chiseled sculpture or ornamentation can make it a good and durable building. Then, when we are faithfully combatting the disease of caries by the best efforts and most approved remedies let us not overlook that principle which permits this disease to exist. By doing so we may be philanthropists to the coming generation, and dentistry will have scored a high mark in the history of science that will go down along the coming ages with distinction and honor. So mote it be.

DISCUSSION ON DR. H. A. SMITH'S PAPER, THE USE OF ANTISEPTICS FOR STERILIZING CAVITIES BEFORE FILLING.*

DR. J. R. CALLAHAN: I was deeply interested in the paper read by Dr. Smith and have been interested in this subject, more or less, for some time. In the first place, he spoke of the use of carbolic acid, of getting better effects from it, provided it was left in the cavity for several days. It has never been clear to my mind why it was better in a tooth a week than it was the moment it was put in. When it comes in contact with the albumen it coagulates it. If I rightly understand it coagulated albumen is insoluble and will remain in that condition for an indefinite time in the presence of the coagulant. I do not see how carbolic acid can go any farther under such conditions.

He spoke of other antiseptics, with some of which I am not familiar. He referred to terchloride of iodine. After reading Dr. Miller's article, some time ago together with his experiments, I began to use it and have been much pleased with. After the terchloride has been applied to the cavity and left in contact a few minutes the carious dentine takes on the color of iodine, or the diseased dentine seems to be saturated with the iodine. I have great faith in terchloride of iodine.

A member: Does it not stain the teeth?

DR. CALLAHAN: No, only the diseased dentine so far as I have been able to ascertain. There may be a slight acid reaction. You can overcome that easily enough.

A member: Is it an irritant?

DR. CALLAHAN: I think not. I have applied it directly to exposed and inflamed pulps with good results.

DR. OTTO ARNOLD: I have had some very excellent results from the use of pyoktanin, confining the use of the remedy to the posterior teeth. It is highly soluble in water. In one case which came under my care a molar, which was quite far back nearly out of sight, a devitalized tooth, soon after the applications of the pyoktanin were made it became a dark blue. I saw a tooth that had been filled and finished perhaps two months later, and it was decidedly lighter, and when I saw it later it

* This paper appeared in January OHIO JOURNAL, page 12.

was still lighter. I am in hopes that, possibly, the stain will disappear entirely in the course of time.

DR. TAFT: I will ask Dr. Arnold if he attributed the improvement in color to elimination of the agent or to decomposition of it?

DR. ARNOLD: I am not prepared to answer that. There were no absorbents, it being a devitalized tooth I do not see how it could be eliminated.

DR. TAFT: Then there must have been either decomposition of the substance, or it combined with some element of the tooth that was lighter in color or that changed the color itself. It would be interesting to know which process gave that improvement in color.

DR. ARNOLD: I will say that the patient for whom I performed the operation has left the State and I am unable to trace the case further.

DR. H. T. SMITH: I also wish to state a case in regard to the use of pyoktanin in the treatment of teeth. A temporary molar, five or six months after treatment and filling, became considerably lighter in color, and it was believed to be due to the absorption of the pyoktanin through the temporary molar. I have tried the action of chloride of gold upon the decalcified dentine under amalgam fillings, that is placing it in a dry cavity and evaporating again to dryness, then filling with amalgam. The union was much greater than that which takes place ordinarily between the filling and dentine. The principle is used, I believe, by Dr. Land in uniting amalgam to porcelain; placing the chloride of gold on porcelain and evaporating or burning it dry thus getting union between the gold and porcelain. Chloride of gold stains a black color.

A member: Has it any antiseptic properties?

DR. SMITH: I do not know that it has.

DR. H. A. SMITH: I quite agree with Dr. Callahan in regard to the point he makes about carbolic acid, if used in full strength, that it causes coagulability of the albumen. That means, of course, hardening, and it would produce a layer which would resist further penetration. If I used carbolic acid alone in sterilizing a considerable mass of carious dentine I would not use it stronger than a 50 per cent. solution. It is only a question of time with the limited amount of septic matter which we usually

find in carious teeth when the sterilizing effect would be produced. I stated in the paper I endeavored to modify the action of carbolic acid. That I would not use it except in connection with an oily antiseptic. That is a point worth noticing.

DR. G. P. GRAY: I agree with the remarks which were made by Dr. Callahan from the fact that we all know what difficulties we have in dealing with a pulp that is very nearly exposed, that is, in a condition such as Dr. Smith has referred to where there is a thin lamina above it. We know in our practice how many fillings we have to remove. We find this condition, the pulp dead, and a thin lamina there. In a great many cases the teeth seem to decay from the inner portion outward. There is a breaking down inward and, of course, this is liable to be because of the portion left not being sterilized.

Some of the gentleman have referred to using the new remedy known as pyoktanin. A gentleman told me he had been using it for a year, and it has acted like a charm. I do not think that is sufficient time to judge of results from its use for it seems to me a great many teeth after being filled, become devitalized and form what is called a blind abscess. We know very many times that teeth have these blind abscesses, or at least, apparently so. When we open one of them there is very little, if any, soreness; it does not seem to give much trouble. We diagnose the case; we say the tooth is devitalized and immediately after an abscess forms or comes to the surface. Of course, we have theories as to the cause of that. It is apparent to me that atmospheric pressure and draining the dentine of fluid, etc., have caused the abscess to develop.

You will excuse me for digressing slightly. In putting antiseptics into cavities the trouble with sterilization is that it is liable to cause devitalization of the pulp. That seems to be the trouble, and whether carbolic acid would not be the best agent rather than the essential oils under such circumstances, is a question in the minds of some. The essential oils are more penetrating and are more likely to reach the pulp. The pulp of a tooth is so delicate that it has slight resistance; almost anything will act as a foreign body. Carbolic acid is said to be more local in its action, and if there is a thin lamina there it will penetrate sufficiently deep to sterilize it, as it forms a kind of eschar, and will not endanger the pulp.

DR. J. TAFT: I think it is well to give a little caution in reference to this matter. The way in which this subject is approached oftentimes (but not by the paper that has been read) would lead us to believe that in the larger proportion of cases of decay where cavities are to be filled more or less partially decomposed, disintegrated dentine is left for some reason. Now, in the great proportion of cases there ought not to be, even partially, disintegrated dentine or tissue. Sterilization may be useful in a certain sense. Both sides of that question are dealt with in Dr. Miller's work. In one place in his work I was led to conclude that there was very little, if any, penetration of organisms beyond the line of disintegration. In another place in his work he treats the subject in such a way as to lead to the conclusion that his belief was that organisms are capable of penetrating to a considerable depth beyond the line of decalcification or disintegration of tissue. But then, after all, whether it is left or not, it becomes a question how much we ought to rely upon sterilization. I do not believe that it is as important as a good many imagine because teeth were filled and decay arrested for years and years before any body thought of sterilization, and even decayed portions of dentine were left over a nearly exposed pulp and covered, and yet decay did not progress. I very much doubt if a cavity is free from loose debris and a portion of partially decalcified dentine or tissue is left over a pulp, and the walls of the cavity about the orifice are thoroughly free from softened tissue, and a filling introduced that will be impervious, between which and the walls of the cavity there will be no moisture admitted—I presume that in very few cases would decay take place. In years gone by there were multitudes of cases of this kind, made by good operators and decay had not taken place. It is perhaps less often than we think that cavities are perfectly sealed in filling. In many cases we fail to make hermetically sealed cavities by filling. We may imagine that this has been accomplished thoroughly, all disintegrated tissue has been taken away and the filling introduced as thoroughly as possible, yet we know there are defective tracks through dentine that cannot be perceived, that are not excavated, and teeth are filled irrespective of them. There will be openings sufficient to constitute a beginning of disintegration of tissue and thus penetrate into the tooth. Great care should be exercised in the preparation of cavities. I

do not believe in leaving softened dentine in cavities ordinarily, only in favorable cases where the pulp would be quite exposed by its removal. In many cases take away all softened dentine about the orifice of exposure and trust to an artificial covering. I am reasonably certain that where the residuum is broken up, where it has lost its structural character, the probabilities are, trouble will occur afterwards, through irritation of the pulp. Therefore, in most cases I take away the softened tissue, leaving none of it to act as an irritant to the pulp. I suppose one of the reasons why sterilization is resorted to by so many is to arrest decay, but after all we are led to conclude by the discussion that the great danger is the progress of the decay in the dentine beyond the filling. Great care should be exercised in forming cavities and introducing fillings as well as in sterilization. We are too much inclined to leave cavities in an improper condition for filling, introducing fillings when there is disintegrated tissue that ought to be removed. If, however, a pulp is covered by tissue that is leathery in consistence and structure not wholly destroyed, it may be retained with a good hope of saving the pulp. I have oftentimes had my attention called to cases like this, where softened dentine was left in a cavity in considerable extent, and the cavity thoroughly sealed. Years after, when removed, the whole portion was as solid as a secondary deposit of dentine in the cavity. I presume that does not so frequently occur as to be relied upon as a mode of practice, but it does occur sometimes. I have seen it in cases which I have had in charge, and in cases in the hands of others. We should not put too much stress upon one particular practice while we leave others without the attention they ought to have. This is the point I wish to emphasize in the matter. Let us give attention to every part in these operations. I know that fillings are made sometimes over softened dentine without sterilization and decay does not go on. Whether decay does not sometimes go on after sterilization may be a question. I have seen operations from the hands of those who were strong advocates of universal sterilization and found decay going on beneath the fillings, but in no instance have I seen decay under a filling hermetically sealed and which remained so afterwards.

DR. C. M. WRIGHT: Such remarks as have just been made by Dr. Taft plunge me into despair, because if his opinions pre-

vail, I see no hope of relief from the slavery of work. When I hear such papers as Dr. Smith has offered to-day I think we are in the right line; the little birds begin to sing about my heart of hope, hope that we shall not have to fill teeth with amalgam and gold and tin and gutta-percha and to use the dental engine, the chisel, the file, and the plugger, all the days of our life. The paper would lead us to hope for that time when dental practice will be confined to receiving patients in the most agreeable sort of manner, saying, "Madam, walk in; name, if you please; be seated." Our instruments will consist of small rods, little swabs, camel's hair pencils and drugs; when we can tell by the kind of debris the nature of the microbe, whether anærobic or ærobic, pathogenic or non-pathogenic and select our remedy, pencil the parts lightly, receive our fee and bid the madam good morning. (Laughter). I have been waiting for this all these years. I was quite happy until Dr. Taft plunged me back into the same old rut which means working from morning till night. (Applause).

"From early chime to chime
As prisoners work for crime."

I am so sorry!

DR. A. O. RAWLS: The question of antiseptics in dental practice has been touched upon and I regret I was not present to hear the whole of the paper. Prof. Smith referred to this matter as it concerned the sterilization of tissue or decomposed dentine. I apprehend that the gentleman who have been talking on this subject have been delving a little bit deeper than they have knowledge of. In the first place, if we consider the question as it refers to decalcified dentine over a pulp, do we know from the gentleman's own statement this morning, supported by Dr. Wright, I believe, that there was no change in the tissue as to calcific matter and animal matter in the youth or aged. If we take it as we have been studying it from the standpoint of Dr. Taft's remarks, then we find that the nutrient canals or currents supply the dentine that is above and below and roundabout with life, etc. We find these open or closed, one of the two. Sterilization means this, that the particles or fluid you use for sterilization must penetrate, must go into the substance of that cavity or canal that has been deprived of its lime salts. Having been deprived of lime salts, therefore, there is a change of structure. This knocks out some of the arguments advanced by gen-

tlements this morning. My idea of sterilization is simply that you have to shut a thing up that is not septic—tissue that is not septic. Septic tissues decompose and disintegrate whether shut up or not. The paper claims that you use a substance that will penetrate or antisepticize tissue. What do you know about antiseptization in these cases? You cannot see into it by the microscope. It is a matter of results. You cannot tell whether you get complete or incomplete antisepticism. We closed up cavities before without a knowledge of antiseptics and the results were just as good, and often a good deal better, because we have been making sick teeth by too much antiseptic treatment when we would not make them otherwise. But there is this much in that practice, that the substance that lies between the exposed, or would-be exposed nerve and the outer cavity has no organization virtually. It is simply a shell or skeleton of that which was, and it being a skeleton, it exists as it is simply because of the integrity of this tissue. You do not want to sterilize that. If it has the integrity to stay there you do not want to sterilize it, but to protect it. There is nothing going on in a layer when it is dead and aseptic. I think that condition of a tooth is just as plain as day, the same as that condition which would be presented by any tissue of the body of a bony nature; that is, if you have decalcification or removal of any special element or particle of that tissue without any outside influences that would conduce to its change, then all you have to do is to protect the integrity of that tissue so long as its integrity will last, until something outside attacks it. Professor Taft said there is a perfection, or a possibility of perfection in protecting this condition. That is a mistake. There is no such thing as perfect contact. There is no such thing as the absolute contact of a filling or nerve capping. There is no such thing as that in either dentine or enamel. Therefore, there must be some influences on the outside that work roundabout and in between when there is no contact. We cannot have it otherwise. As Sir Isaac Newton, the great astronomer, said: "Compress the world into one solid mass and you can put it into two inches square." Where do you get absolute contact of a tooth? At any rate there is no such thing as having absolute contact of a filling or a capping material in such a manner that it will preclude the possibility of changes beneath and about it. We have the experience that a few years filling will

conserve a certain portion of the dentine and enamel with comparative contact with it, but when it comes to *absolute* contact there is no such thing as that. That is just exactly what we have to contend with and what we are mistaken about in our efforts to assist the continuance of the integrity of the tissue upon which we work. We bruise or change the condition of a surface by hammering, by the chemical influences of a substance which we put in it, otherwise we could protect and conserve by different means to those, but only for a time. As a rule antiseptics are not necessary in cases of deep decay, because, generally speaking, antiseptics have nothing in the shape of septic matter to operate against in deep-seated caries. That is simply a destruction of tissue by a lack of nutrition, and a lack of nutrition does not necessarily mean that there are septic matters there to cause this lack of nutrition.

DR. H. A. SMITH: What about the micro-organisms there?

DR. RAWLS: We do not know that they are always there.

DR. SMITH: Yes, we do.

DR. RAWLS: You cannot prove that they are there beyond a certain depth without removing tissue of importance to the tooth, a certain place in the semi-disorganization or disintegration.

DR. SMITH: There is no disorganization in this substance.

DR. RAWLS: You said yourself there were no septic germs, and that you cleaned out the cavity down to a point where there was no septic matter.

DR. H. A. SMITH: When I hear persons of the mental calibre of Prof. Taft and Dr. Rawls address a body like this with such remarks as they have made to-day, I soon discover that they do not believe in the chemico-parasitical theory of decay.

DR. RAWLS: I may have been placed in a false position before this society on the subject of antiseptics. I did not mean to state that I was not in favor of all antisepticism that was of value to any condition or disease connected with the mouth that we deal with; at the same time I was simply arguing as to the possibilities of the effects in these cases, and not as to the possibilities of our knowledge as to *how* or *why* they should produce these results, since we have not seen by the microscope any special difference between one treatment and another. Now, there is only one means by which antiseptics can produce the result, and that is by entering into the substance of the tissues.

A Member : If they enter into the substance of the tissues, do they become part of the tissues ?

DR. RAWLS : Yes, to a degree.

A Member : Or are they absorbed by dead tissue ?

DR. RAWLS : To a certain extent they are, as carbolic acid or pyoktanin, either one of these substances will be taken up by the absorbent vessels and carried out through the system.

A Member : Are they of an insoluble nature ?

DR. RAWLS : They must be insoluble. There must be a line of life ; there must be an anastomosis between death and life, or a line of demarkation, and where you have dead tissue, what is the difference to you if that is shut up whether you sterilize or not ? You cannot say that the micro-organisms produce these results. You cannot say that they were diseased, they died, and as a result of their death you say an acid was produced. You cannot say that knowingly. You assume it. Therefore we are working in the dark on the subject of antiseptics in a dead material that we want to save the integrity of. If you would preserve that tissue you put something in that does not belong there, you want protection, not antiseptization, of dead tissue.

DR. TAFT : I want to say a few words in reply to the remarks of Dr. Smith. I would much rather you would take my own statements as to what I believe and the theories I espouse, than to have him say what I believe, and what I do not believe. I am not so ready to make square assertions about things that have never been clearly demonstrated. I do believe that there are organisms (vegetable organisms) in connection with nearly all cases of decay of the teeth, and I have said this a great many times. They have some influence undoubtedly, but what that influence is, and exactly how it is operated, I do maintain has not been made clear as yet, hence much of the practice that is employed in this direction is experimental, not to say empirical. It is upon a certain hypothesis that has not been clearly demonstrated. Perhaps many of these organisms live without air (anærobic), and some of them can only live with air. Dr. Rawls is rather inclined to doubt perfect contact or perfect adaptation, which is in one sense true. A cavity sealed up so as to exclude all foreign substance, liquid, everything of this kind, is hermetically sealed. I believe in the use of antiseptics, but then my use of them is not based upon the theory that antiseptics is a necessity in all cases, that has not been demonstrated.

DR. SMITH: Do you refer to the etiology of caries now?

DR. TAFT (continuing): Not so much that. I refer simply to the condition as it exists and is sometimes found. These organisms do sometimes penetrate dentine, but not deeply however. I have a number of slides of dentine prepared in which it seems that they penetrated, and seemed to be in the tubules beyond the line of disintegration and decalcification. One or two of these slides were prepared by Prof. Miller. Just what influence these micro-organisms have in the production of decay, is not sufficiently proven; there are various theories on this point. We say at Saratoga last summer a number of teeth in the mouth of a boy in which decay seemed to have been arrested by the use of nitrate of silver, the action of the caustic upon the tissue arrested the decay. This was done without any other antiseptis.

DR. SMITH: Yes; it was the caustic action of the nitrate of silver which destroyed both the bacteria of caries and a superficial layer of dentine. The silver nitrate by forming an insoluble compound with the layer, prevented the further action of caries.

DR. TAFT (continuing): I would like to know as much about it as a great many claim to know. I have not got to it yet.

DR. H. A. SMITH: We should accept the doctrine of Dr. Miller, because we can produce precisely the same conditions out of the mouth that we find in carious teeth in the mouth. We can infect dentine out of the mouth and produce true dental caries; therefore we see that this is a plausible theory. I remember it is not many years ago when I was disposed not to accept the so-called mineral acid theory, and I was criticised in this society for being a little too advanced. Now it is very generally believed that micro-organisms play a very important part; indeed, that they are essential to the production of caries of the dentine. Dr. Taft appears to be one of the few who are not yet convinced.

DISCUSSION ON DR. CALLAHAN'S PAPER, COMBINATION FILLINGS.*

DR. C. M. WRIGHT: I think the paper read by Dr. Callahan is a good one of its kind. I will not say anything about the kind. He started in with a criticism of a society of dentists who had nothing but scientific papers presented. Once upon a time

* This paper appeared in January OHIO JOURNAL, page 15.

there was a lot of griddle-makers in the country who devoted themselves to the mechanical operation of making gridles for the people. The principal thing was to make good griddles, so that the people might make cakes in the morning. But the griddle-makers got to studying the qualities of the material used in the cakes. They studied also the subject of nutrition and general biology, and little by little instead of discussing the best methods of making griddles when they met in griddle-makers convention, they talked about the health of the people who ate the griddle cakes, until at a while they established a school and were recognized as a profession. By and by a wicked man by the name of Callahan came along, not caring about the health of the people nor the kind of cakes eaten, nor the questions of physiology, and said, "Let us confine ourselves to the manufacture of fine gridles; this is practical." This is Dr. Callahan's position in our society to-day.

DR. CALLAHAN: The remarks by Dr. Wright are to the point as they usually are. So far as devotion of time to scientific discussion and work is concerned, I do not think there is any man who spends more time from this standpoint than I do. In my opinion the scientific work should be better, and the class of practice I have reference to many of you are familiar with. Many of you see the work of men who occupy prominent positions in our profession who can do much better than they do, but they send their patients away as if they thought it was not necessary to put in a good filling. We should pay a little more attention in this line. When I read the paper I had in mind two or three men in New York city, one the president of a dental college there, whose work his patients are not satisfied with. Much better work could be done than is done if proper care was taken to do it.

DR. H. A. SMITH: This is too important a subject to let go without further discussion. Dr. Callahan has gone into the subject forcibly and presented his reasons why combinations fillings should be often made. He did not refer perhaps to the economic side of the subject. There are several reasons why these fillings might be made from that standpoint. Should we estimate the cost of material? Some one asked not long ago the relative cost between the cheapest materials and gold? Taking the silver dollar as a basis, it was stated the relative cost would be about

as one to thirty. From that standpoint, perhaps, we ought not to insert them. If there is to be any advantage, however, in this direction, it should be largely on the side of the dentist. If a filling of one form of gold, say soft gold, could be introduced into a cavity and regarded as a thorough filling, it is just as good as a combination filling, and therefore I think a combination of materials are sometimes resorted to, as Dr. Callahan has intimated, because the operator does not exercise or possess the requisite skill to make good gold fillings. Permit me to call attention to a combination of the metals and oxyphosphate. I have in my hand a combination filling composed of one-half in bulk of what is called Leslie's crystalline gold and oxyphosphate. These fillings I have inserted occasionally, but cannot give anything definite in reference to their durability. The filling presents a dense surface. It has the advantage of edge strength, and for these reasons it might be preferred. Whether it is dissolved as rapidly as a phosphate filling I do not know. It seems to me we would not have a solution of the surface as rapidly. The gold can be burnished over the surface, and this would be a protection to prevent the beginning of the solvent action. This may not be new to you. We have had our attention frequently called to combination fillings in which the metals are associated with oxyphosphate. I have here specimens, fillings made of oxyphosphate and alloy, such as are used in amalgam fillings. They are objectionable in that they discolor. They have two qualities, however, in their favor, density and edge-strength; qualities which we do not have in oxyphosphate fillings. I tried the experiment the other day of introducing an oxyphosphate filling and placing immediately upon the surface a mat of sponge gold. It seemed to adhere. After hardening the gold was condensed upon the surface, and we had a phosphate filling with a gold surface. If the cavity is accessible and the manipulation done rapidly this might be accomplished.

ALL SORTS.

CHLOROFORM, according to experiments of Dr. Kirchner, has been found to be a rapid destroyer of pus germs.

SOAP FOR VULCANITE AND CELLULOID.—To 2 parts of new soap add 1 part fine pumice powder and suitable perfume.—*Phar. Rec.*

SPRING BRONZE is recommended by Dr. Rynear as the best material for plaster spatulas as it does not rust and is easily cleaned.

SULPHATE OF ZINC as an after-treatment of an abscessed antrum is very useful as an astringent, 1 to 3 gr. to the ounce of tepid water.

TO SEPARATE A MODEL FROM IMPRESSION, when left together for some time, drop into hot water; the steam generated makes separation easy.—*Items.*

PASTE FOR COVERING EXPOSED NERVES.—The combination of oxide of zinc with a nearly saturated solution of aristol in oil of gaultheria is recommended by Dr. Louis Jack.

DISINFECTION OF THE HANDS—Soap and water plus permanganate of potassium and oxalic acid are the only true germicides, and therefore the best disinfectants we possess to-day.—DR. H. A. KELLY.

ERADICATE SYPHILIS from the human family, and many, if not all other supposed causes of caries would disappear, and the generation to come would be exempt from the misery it entails.—DR. GINGRICH.

GELSEMIUM IN NEURALGIA.—Neuralgia of the fifth nerve, not dependent upon decayed teeth or disordered stomach, may be relieved by five-drop doses of fluid extract of gelsemium, administered three times a day.

HÆMOSTATIC.—The ferro-chlorhydrate of quinine externally has the same coagulating properties as the perchloride of iron, to

which it is superior in that it is devoid of caustic properties; it does not cause pain even when applied to recent wounds.—DR. KARSCH.

RETRACTION OF THE GUMS from the teeth, occurring in old persons or those of middle age is treated by Stillé with a watery solution of iodine, 1 gr. to the ounce, applied with camel hair brush, and followed at once by a thorough rinsing of the mouth with pure water.

THE VALUE OF VARNISH FOR LINING CAVITIES.—Amalgam used in connection with varnish remains bright upon the inner surfaces, which it never does if filled upon bare dentine; this proves an important point, that there is no chemical action in a varnish-lined cavity, consequently no decay.—DR. S. B. PALMER.

PROFUSE HEMORRHAGE.—Never give stimulants in a case of profuse hemorrhage. The faint feeling, or irresistible inclination to lie down, is Nature's own method of circumventing the danger, by quieting the circulation and lessening the expulsive force of the heart, thus favoring the formation of clot at the site of injury.
—*Clinique*

THE ANTISEPTIC ACTION OF CORROSIVE SUBLIMATE INCREASED BY HEAT.—Solutions of sublimate, heated to the temperature of 100° F. or over, have their antiseptic properties rendered more energetic by the elevation in temperature. A solution of 1:1000 it is said, under these conditions, possesses a germicidal action equal to a cold solution of 1:500.

TO IMPROVE THE LOCAL ACTION OF TINCTURE OF IODINE.—Tincture of iodine mixed with glycerine, is claimed by Dr. Hammond to prove more effective as a local application than the plain tincture. This is due to the retardation of the dissipation of the iodine or, more likely, to the skin remaining soft and hence in a better condition for absorbing the drug.—*Lancet Clinie*.

PEROXIDE OF HYDROGEN should never be carried into any cavity which is filled with pus or blood. Such cavities should be evacuated by irrigating them with warm boracic or carbolized water, after which peroxide of hydrogen applied serves a most important part in oxidizing and removing septic matter which may cling to the walls of the cavity.—DR. BROPHY, *Review*.

AN OLD IDEA USEFUL.—We believe it was Dr. W. H. Eames who said “if you wish to remove a deciduous tooth, and through fear the child will not permit it, slip a piece of rubber tubing over the crown down to the neck of the tooth, and in a few days the tooth will be so loose that it can be extracted with the fingers.” If you have such a case try it and see the exact result.—*Dental Review*.

TO PREVENT NAUSEA AND VOMITING AFTER THE ADMINISTRATION OF ETHER.—Before administering the anæsthetic give the patient one-hundredth of a grain of strychnine in conjunction with bromide of potassium, or sodium, thirty grains in solution. This is my practice, says Dr. Turnbull, especially in the class of patients who habitually use stimulants freely or who suffer from nervous difficulties.

HOW TO PRESERVE RUBBER-DAM.—Put it in a glass jar and fill with water, close the jar up air-tight, and let stand in a cool dark place for two weeks, and then rinse the rubber in clean fresh water. Put the rubber back in the jar and fill with water, and keep as before. I have a sample of rubber that I have kept over five years in this way that is as *good as new*.—DR. R. R. RYKERT, Attica, N. Y.—*Items*.

TREATING IRREGULARITIES.—Much harm is done by the use of regulating appliances which change the articulation without improving it, and it is almost a universal fact that unless an improvement can be made in an articulation there will be no permanent improvement of the irregularity.

Finally, the articulation is the only permanent retainer to be depended upon.—DR. DAVENPORT.

THE BEST OF ANTISEPTICS FOR THE MOUTH (DUJARDIN-BEAUMETZ).—

R	Water	-	-	-	-	-	pt. j
	Boric acid	-	-	-	-	-	oz. ss
	Carbolic acid	-	-	-	-	-	gr. xv
	Thymol	-	-	-	-	-	gr. iv

—*La Medecine Moderne*.

IN FILLING WITH AMALGAM dry, or almost dry, flakes should be added, before the cavity is fully filled and pressed into that

already packed. This not only takes up the surplus mercury that appears on the surface, but prevents shrinkage, makes a harder surface, and takes a better polish. Of course, so much should not be added as to cause the body to crumble, or to disintegrate, but enough to make a solid, smooth, quick-setting surface.—*Items.*

NEURALGIA FROM MALARIAL POISONING is successfully treated by Dr. J. E. Garretson, as follows:

R	Cinchonæ rubra pulv.,	-	oz. i.
	Serpentariæ Virg.,	-	oz. ss. M.

To be put into one and a half pints of water, simmered into one pint, strained when cold, and one pint of Lisbon wine added. The dose is two tablespoonfuls three times a day, best taken just before meals.

MANAGEMENT OF IMPRESSION TRAYS WHEN USING MODELLING COMPOUND.—To prevent sticking of the compound to the tray when separating, Dr. Melotte suggests the use of a suitable piece of linen spread into the tray and fastened at the sides and through the bottom by means of the flat wire fasteners used by bookkeepers. When in place put in the compound and after separating from the tray remove the cloth and the tray remains bright and clean.

SIGNALS.—Pink temporary stopping is used by Dr. Ottolengui to cover arsenical dressings, or in such teeth where condition demands that attention should be given to the tooth at the next sitting. The white he uses for teeth whose root canals have been filled, or any other condition where it is not absolutely essential that the particular tooth should be operated upon immediately. Thus a glance at the mouth determines which teeth need immediate attention and probably recalls the fact as to what was done at a previous sitting.

HOW TO ADMINISTER ETHER.—Dr. Wyeth gives ether with the Ormsby inhaler. It is the best he has seen, and requires a minimum of ether. Prolonged anæsthesia was recently sustained in a young man, with one ounce. With this inhaler the patient partly breathes the same air over and again, as the ether vapor is confined in a rubber bag, so that the anæsthesia is, to a certain extent, safe carbonic acid gas asphyxia. The ordinary inhalers

require the constant admixture of free air and ether. This chills the respiratory tract, resulting in kidney or other disease.

CAPSICUM PADS FOR PERIODONTITIS.—Take a raisin, cut it lengthwise into halves, remove the seeds from the half to be used, and into the pulp, with suitable instrument, work ground capsicum and ground ginger, equal parts, and apply the medicated side directly to the root of the tooth affected.

The skin of the raisin prevents the medicine from passing through and irritating the cheek and lip.

They stay well where placed and easily adapt themselves to the unevenness of the gum.—W. H. GAGE, Le Raysville, Penn.—*Items.*

ANTISEPTIN.—Radlauer considers antiseptin, introduced by him into therapeutic use as a chemical combination, and denominates it the iodo-boro-thymolate of zinc. But analysis of this substance shows that it is not a definite chemical compound, but only a mixture of iodide of zinc, thymol, boric acid, and sulphate of zinc. The proportions are as follows :

R	Zinci sulphatis	-	-	-	-	85 parts.
	Zinci iodidi					
	Thymolis	-	-	-	aa	2½ parts.
	Acidi borici	-	-	-	-	10 parts. M.

AN EXCELLENT MOUTH-WASH.—Dr. W. H. Fowler, Painesville, O., gives the following as an excellent preparation :

R	Fl. Ext. Soap tree Bark,	-	-	-	oz. 1½
	Alcohol,	-	-	-	oz. ½
	Glycerine,	-	-	-	oz. 1½
	Hamamelis, (Pond's extract),	-	-	-	oz. 3
	Oil Wintergreen,	-	-	-	m 8
	Oil Cloves,	-	-	-	m 5
	Soft water,	-	-	-	oz. 8

Dissolve the oils in alcohol and then add to other ingredients.

CROWN REMOVER.—Dr. W. H. Trueman exhibited a little device for the removal of crowns which were set in the roots with gutta percha. It was merely a small vial with a slot in the cork, through which passed a piece of grocer's cotton cord, forming a wick. The cord was moistened with alcohol and set on fire. A

minute blaze was the result, which was held for a few moments next the crown. The gutta percha was thus quickly softened, more quickly and effectually than by the application of a heated instrument to the tooth, as is usually the plan adopted, and with no discomfort to the patient.—*Pa. So. report Off. & Lab.*

TO FACILITATE FILLING INACCESSIBLE CAVITIES.—Where you have a second bicuspid badly decayed and a molar decayed on the anterior and posterior surfaces and the second molar decayed they can be filled even with gold, but it requires a great deal of time and work to fill these properly. In this case I cut away the first molar so as to give perfect access to the cavity in the second bicuspid, also the cavity in the second molar. By doing this I can perform the operation in much less time and fill these cavities with a great deal more accuracy; and after the fillings have been inserted crown the first molar.—*DR. THOMPSON, So. Dent. Jour.*

IN ACUTE PERICEMENTITIS.—Bathing the face and neck in hot water, this will prove very soothing in conjunction with counter-irritation and constitutional treatment. Use a large napkin dipped in water about 180 F., do not wring it completely dry, continue this for ten minutes, and give internally teaspoonful of fl. ext. gelsemium, minims x., water $\overline{3}$ i., every fifteen minutes until four doses have been taken, then every half hour for two hours. Or, use calcium sulphide in $\frac{1}{16}$ gr. pill until eight have been taken in two hours, then one every half hour for two hours. Relief will follow in a very short time if the treatment is followed faithfully.—*Review.*

ABSCCESS EVACUATOR.—Take a rubber polishing cup and plug the mandrel hole with a piece of gutta-percha, which must not project on the inside of the cup. Then wet the inside of the cup, and place it over the gum so as to cover the opening into the abscess. Gently press the cup flat upon the gum, and upon removing the finger the elasticity of the cup will cause sufficient suction to fill it with the contents of the abscess, which by repeatedly applying the cup may be completely evacuated. Medicaments placed in the tooth-cavity may likewise be drawn through the sac and sinus, and immediate root filling be practiced with greater prospect of success than by any other modes of practice.—*Cosmos.*

DOUBLE BACKING FOR RICHMOND CROWNS.—I use pure gold about 38 to 40, standard gauge. After grinding the tooth to fit the ferrule cut out of a piece of gold, leaving it long enough to cover the tip of the tooth at an angle of 45 degrees; cut the second piece a little longer so the solder will not join the two; do not rivet the pins, but use sticky wax to hold the backings in place till the crown is in the investment and then solder in the usual way.

I have found this rule, when followed out, to give good satisfaction after using it over a year, having had no trouble with checked teeth.—*Items.*

A METHOD OF MAKING A CROWN.—After having fitted a cap, with one or more posts as the case demands, to the root, a saddleback tooth is selected, ground and adjusted to place and soldered to a cap. Then it is removed from investment, thoroughly cleaned of particles of marble dust or plaster and an easily fusing body is packed under crown and around the pin, completely filling vacant spaces and contouring to the desired shape, and fused.

The same crown can be made by backing the saddleback tooth with gold, adjusting and filling the vacant space with gold solder. But it is not quite so neat as when the body is used instead.—DR. A. P. JOHNSTONE, *Review.*

INDICATING THE LENGTH OF BITE.—The bite is taken in the ordinary way with wax, marking the medium line and also the length of the lip. It is placed on the cast and run. Before opening, wax a narrow strip of paper on the top of articulator and let it extend over the front to the mark in the wax indicating the length of the lip. Open the articulator and the paper represents the lip, accurate and simple. This is the most precise method I have yet seen, and there is no necessity of trying in the teeth as they cannot deviate a particle. Dr. Poole of Buffalo, has practiced this for many years, and has had universal success.—C. H. STADLINGER, D.D.S., Buffalo, N. Y.—*Items.*

REMOVABLE BRIDGES.—We have seen where an entire set of artificial teeth had been inserted on one tooth. The piece was removable and the patient was able to keep it thoroughly cleansed; it was very strong and stationary. I have been experimenting in this direction a good deal, doing away with the cov-

ering of the roof of the mouth and inserting there one to five or six teeth ; and my mode of doing it is by making a little spring-plate ; I get an accurate impression and get up a tin model from the impression ; this gives a remarkably accurate fit, allowing the rubber to run around the teeth ; it is astonishing how secure and firm you can attach from one to five or six teeth with them.—
 DR. THOMPSON, *So. Dent. Jour.*

AN IDEA FOR CROWN WORK.—Have you ever been troubled by having the solder run out of the cusps and crowd up the inside of your band in gold crown work ? I will tell you how to prevent it. When you have fitted the band for the last time, before soldering the cusps on, remove it, and instead of proceeding in the usual way, solder a piece of thin, pure gold, say about 36 to 38, gauge over the top of the band, forming a perfect flat covering. Then, after stamping and articulating your cusps in any desirable way, fill them with solder perfectly flush.

Now with a corundum stone or file, grind or file the solder surface of the cusps perfectly flat, after which borax and place in position on to the flat top on the band formed by the thin, pure gold. Heat until the solder in the cusps flows, when a union will take place between the cusps and flat top, without a particle of solder entering the inside of the band.—DR. H. H. JOHNSON, *So. Dental Jour.*

A METHOD OF PROLONGING LOCAL ANÆSTHESIA.—For this purpose Dr. Leonard Corning has devised a double-barreled hypodermic syringe with a single needle, and describes his method at length in the *New York Medical Journal*. He places 2 or 3% cocaine solution in one barrel and fills the other with a pure non-irritant oil, preferably cacao butter, which is maintained in a fluid state by occasionally dipping the syringe into water of 115° F. The cocaine is first injected, then, without removing the needle the oil is forced into the same tract, and the surface chilled with cold water, ice, or ether spray. This solidifies the oil, obstructs the capillary circulation and produces a local stasis that anchors the cocaine solution. When the anæsthesia is no longer required the external refrigeration is discontinued and the oil melts by the heat of the body and is taken up in the general circulation. By this method Dr. Corning has maintained a limited zone of anæ-

thesia for more than an hour and sees no reason why it cannot be maintained for a much longer period.

FITTING BANDS.—A strip of gold, the proper length and width, is cut and annealed to perfect softness. It is then, with pliers, approximately fitted about the root, and a strong waxed ligature wound about it—usually twice—with a single surgeons' knot placed in it. While the assistant holds the band in place by her finger upon the top of it, the ligature is firmly drawn up. The cervical edge of the band is carefully burnished into place, and the overlapping end pressed down. The ligature is again and again drawn up, until the band is perfect in its adaptation. Then it is finally tied, the band slipped off, grasped by a pair of delicate pliers at the lap, a bit of solder placed on the inside, and it is held in the flame until soldered. The ligature is left to burn off in the flame.

The adapting of the cervical edge of the band to the festoon of the gum may be partially done before the ligature is placed about it, or it may be entirely left until after the soldering is done, according to the necessities of the case.

There is nothing better for ligatures than three-cord, linen machine thread, about No. 30, such as is sold for shoemakers' use. It may be obtained at shoemakers' outfitting establishments.—*DR. W. C. BARRETT, Dent. Prac.*

PLACES WHERE GUTTA-PERCHA IS POSITIVELY INDICATED, are extremely sensitive cavities along buccal, palatal, or lingual surfaces, especially where they extend wholly or in part below the gum margin, in molar teeth. Here the pink variety is to be preferred. Where the teeth have been worn by ill-fitting clasps, so that cavities filled with leathery decay have been formed, which, when cleansed, leave hypersensitive dentine, they are more likely to be cured with gutta-percha than with any other material. It is better to be obliged to renew the fillings periodically, than to risk death to the pulp by using a metal. Gutta-percha is not a non-conductor, but it is a poorer conductor than the metals, and what is more important, all the tissues of the mouth, whether hard or soft, are singularly tolerant of it. Occasionally a patient will present with a deep cavity in a most inaccessible approximal surface. Excavation makes it doubtful whether the pulp is nearly approached, or whether hypersensitive dentine alone is the cause

of the pain. A very wise course is to temporize by inserting gutta-percha. Too much examination may expose a pulp in a small cavity, thus necessitating a tremendous sacrifice of tooth-substance for its proper removal, whereas under a gutta-percha filling this class of teeth is frequently troublesome no longer.—
Dr. OTTOLENGUI, *Cosmos*.

FILLING MATERIALS FOR ROOT CANALS.—Dr. R. M. Chase advocates the use of Aristol, two grains incorporated into a drachm vial of chlora-percha as a permanent root canal filling material. If the aristol precipitates while standing it should be well stirred together before using. This renders the filling permanently antiseptic.

Dr. Louis Ottofy uses chlora-percha into which is incorporated a small quantity of iodoform. He first forces, or pumps, eucalyptol and iodoform into the canal and space beyond the apex, if a space exist, then absorbing the excess of eucalyptol fills about one-half of canal with the chloro-percha then uses oxy-phosphate cement which, as it hardens, he forces into the root causing pressure and making a tight filling.

Dr. E. Lloyd Williams says that in those difficult cases in which he is unable to properly clean out and dry the buccal roots of upper molars he uses plaster of Paris, mixed very thin with a solution of 1 to 100 perchloride of mercury, the plaster soaking up any moisture that may be left. For ordinary cases he uses twenty per cent of hydronapthol mixed with his osteo as a permanent filling.

THE PROPER MANIPULATION OF AMALGAM.—Place in the mortar the amount of alloy desired, and add a little mercury; stir vigorously, and the mercury will take up all the alloy with which it can unite. Add more, and more, stirring between each addition, until the mass is soaked with mercury, but perhaps granular. If it now be turned into the palm of the hand and manipulated vigorously, the friction produced will aid in the amalgamation, and a mass quite plastic can be produced. This plasticity is not the result of an excess of mercury, for we have seen that while cold, in the mortar, it did not reach such a consistency; it has been attained by heat rather, and there is no need to squeeze out any mercury, though, in order to be sure there is no excess, it is

as well to squeeze with the finger and thumb. That amount of pressure will not force out any mercury if too much has not been used, and if this method of mixing be followed it will rarely occur that any excess will be found.

If mercury, as ordinarily used, squeezed from amalgam mixings, be preserved in a bottle, and then examined, it will be found that it contains a considerable proportion of metals which it has absorbed from the alloy. Thus it would seem that it has brought away with it a portion of that metal contained in the alloy for which it has the greatest affinity. The result must be an alteration in the proportion of metals contained in the alloy. Thus, if a given alloy is used for making an amalgam, and one mixing is made with just the proper quantity of mercury, while a second is prepared with an excess which is removed by pressure, it would seem natural to expect that the two would not act similarly even in the same mouth. This would explain, perhaps, the oft-claimed unreliability of amalgam, where it will fail in a tooth upon one side of a mouth, and succeed admirably upon the other. It is not the amalgam that is unreliable, but the dentist, who has not a definite method.—DR. OTTOLENGUI, *Cosmos*.

EDITORS' SPECIALS.

COLOR-BLINDNESS.

SOME years ago officials of several railroads determining to lessen accidents from misplaced switches, etc., ordered an examination of all the railroad employees for color-blindness. The test was made by means of silk twists of various hues; the applicant being requested to match the varying shades of certain colors. The result was that fully two-thirds were unable to pass a satisfactory examination and a large per cent were unable to distinguish the difference between red and green, totally unfitting them for determining correctly the color of switch lights. There was an exodus of these employees and from various observations we imagine some of those same fellows entered the dental profession and went to work on artificial masticators. After seeing some of these ludicrous mismatches we have wondered whether the fault was from carelessness, undeveloped faculties or actual color-blindness. We have determined, however, that, while there

may be much carelessness, the main fault is lack of education in this direction. Few, if any women are color blind. From childhood they are trained in distinguishing colors and this faculty is highly developed. With boys it is different. White and black (cleanliness and dirt) are about the extent of their knowledge of colors. The faculty of distinguishing colors, especially the varying shades, remains almost wholly undeveloped even in manhood. Education in this direction is one of the greatest necessities to the dental practitioner, not only in the construction of artificial dentures, crown and bridge-work, but in the preparation of cavities for filling, glass inlay work, etc. Every student should be thoroughly trained in matching various colors, especially the different shades of artificial teeth, while studying with a preceptor. He should be examined upon this subject when entering college and practically taught during his college course. With this thorough training we dare say few if any would allow carelessness to destroy a perfect match providing suitable teeth could be secured. There is an opportunity to raise the standard of dentistry in this particular by giving more attention to these things and we hope to see this training more thoroughly instituted in our various dental colleges.

L. P. B.

WHY IS IT?

A QUESTION FOR DENTAL PRACTITIONERS TO ANSWER.

IT is a very lamentable fact that comparatively few of the dental profession attend dental society meetings. The few who do attend go year after year, keep the ball rolling and reap the benefit. It cannot be denied that dental societies are beneficial to members of the profession who attend the meetings. We ask then, why this non-attendance? It is not alone in any one district or State that this indifference is manifested, but in all of them.

Why do you not attend? Have you any special reason for not doing so? Is it because you already know enough of dentistry and do not care to keep pace with the rapidly advancing profession? Is it simply indisposition? Is it a question of value received for expense incurred? or, are not the different societies conducted in conformity with your ideas? We are sure that

members of the various dental societies would be pleased to entertain any thought or suggestion you make in regard to this matter. They are anxious to advance and everything that will promote the interest of a society will certainly be gladly received.

This is an important question at the present day and we would like to receive replies from every reader who is not a regular attendant at dental society meetings. We would also like to receive any suggestions from society members as to how the good work of societies may be advanced.

We desire these replies, *not for publication individually*, but that we may be able to glean from them collectively the true reason why dentists in general do not take more interest in dental society affairs.

Now gentlemen of the profession, we desire a reply from every one of you expressing your exact feeling in this matter, and we assure you that the contents or signatures of all letters pertaining to this subject, if so desired, will be kept strictly confidential. Send replies to Dr. L. P. Bethel, Kent, O. L. P. B.

MEETING OF DENTAL EDITORS (?)

Is it not about time that the dental editors meet and effect an organization? Dental journals were probably never before read so extensively as now, and the in-roads they have made on the profession in the past few years are very marked. The dental journals advocate raising the standard of dentistry and individual efforts of editors in the past have done much toward advancing this cause. It is a great question in what way a dental editor can do the most good toward advancing dental education in general. The journals are the teachers of the profession and much responsibility rests upon each editor; he is looked upon as an instructor; an educator; and while the journals are doing a vast amount of good it seems as though by friendly conferences the editors might advance methods and means that would assist in furthering the work that is expected of them. At the World's Columbian Dental Congress next year will be a fitting time and place to assemble, and the OHIO JOURNAL for one would like to see such an organization effected. Brother Editors what say you?

L. P. B.

THE OHIO JOURNAL FOR 1892.

PERHAPS our readers have already noted the changes made in THE JOURNAL for January, and whether you have or not we will tell you what we propose to do during the coming year. First, we propose to give in condensed form all the practical thoughts and useful suggestions that we can glean each month from all the dental journals published and also from many medical publications as well. These, together with original thoughts from the profession, will be arranged under the head of "ALL SORTS." Our contributions promise to be of special value and include both scientific and practical articles. Articles of *special value* appearing in other journals will be reproduced under the head of Compilations. News notes and matters of a general or personal interest will be given a place in "OUR AFTERMATH." Editorials, Society affairs, Book notices, etc., will be given their accustomed places. We hope to make this volume of the OHIO JOURNAL of special interest to our readers and they can do much toward accomplishing this end by sending in brief descriptions of methods and appliances that they use in their every-day practice.

L. P. B.

NEW PUBLICATIONS.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS with especial reference to the application of remedial measures to disease and their employment upon a rational basis. By H. A. Hare, M.D., B.S.C., Prof. of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, etc. Philadelphia : Lea Brothers & Co., 1891. Price, cloth, \$3.75 ; leather, \$4.75.

This is the second edition of this work, thoroughly revised and enlarged. That the first edition was exhausted within six months after publication is an indication that it has been well received. Rational therapeutics at the present day does not consist in a knowledge of doses and the materia medica, but exists as a complex art in which knowledge and its proper application, based on common sense principles, go hand in hand. Scientific research has so largely opened up to every one the possibility of using drugs with a distinct idea of the reason for their employ-

ment, that the writer has endeavored to bring together in a readable form the combined results of laboratory and bedside experience. Throughout this book the writer has arranged the titles in alphabetical order according to their English names which affords the reader ready reference to drugs and diseases. All of the medicaments are fully yet concisely considered. Each drug is briefly described, its physiological action on the general system is considered, then on the nervous system, circulation, temperature, respiration, etc., and then its therapeutic effect is dealt with in detail.

Part I is devoted to General Therapeutical Considerations. Part II to Drugs. Part III, Remedial Agents other than drugs and Foods for the Sick. Part IV to Diseases, Dose table, Weights and Measures. Index of drugs and remedial measures. Index of diseases and remedies.

As a whole this is the most complete in itself of any book with which we are acquainted, and if the dental practitioner cannot afford but one medical work we would recommend this one.

AGE OF THE DOMESTIC ANIMALS, by R. S. Huidekoper, M.D., Prof. of Sanitary Medicine and Veterinary Jurisprudence, American Veterinary College, New York. Philadelphia: F. A. Davis, Publisher. 1891. Price, cloth, \$3.75.

The work before us, containing 217 pages, is a complete treatise on the dentition of the horse, ox, sheep, hog and dog, and on various other means of determining the age of these animals. It is an important work for so little has been published relative to this subject. The author says he has attempted to prepare such a book as he feels would have been of interest and service to himself in his association with animals as a layman, and would have aided his studies and appreciation of the anatomy of the teeth, dentition, and the means of determining age. The period of usefulness of the domestic animals is limited to a few years, and a short time diminishes greatly the extent of usefulness to which each can be put and in consequence lowers its value. Therefore any reliable information that will enable us to judge the age of an animal will be highly appreciated by all those who wish to purchase. Aside from the aids in determining the age of these animals, to the dentist this book is of special value as a treatise on the comparative anatomy of the teeth.

It is profusely illustrated with 200 engravings and the text forms a study well worth the price of the book to every dental practitioner.

A COMPEND OF HUMAN PHYSIOLOGY, by A. P. Brubaker, A.M., M.D., Prof. of Physiology in Pennsylvania College of Dental Surgery, etc. Philadelphia: P. Blakiston, Son & Co., 1891. Price, \$1.00; interleaved, \$1.25.

This is one of the popular "quiz compends" that have been issued from this reliable house. We have in the past given Dr. Brubaker's Compend extended notices and probably many of our readers are familiar with its general make up. The sixth edition, however, is a thorough revision of preceding editions and a number of subjects of special importance have been added. The book now contains about 200 pages. A number of new illustrations have been added and a table of physiological constants incorporated. These books are valuable aids to the student.

DIGESTION AND ASSIMILATION. New York: Reed & Carnrick, Publishers. 1891.

This little book contains an abstract of the symptoms with the latest dietetic and medicinal treatment of various diseased conditions. For greater brevity and usefulness it is divided into two parts.

Part I contains an outline of the leading symptoms of each disease and the dietetic and medicinal treatment that is most effectual in relieving or curing these abnormal conditions.

Part II contains a more accurate yet concise account of foods, together with the methods by which many of the diseased conditions previously enumerated are developed. While gotten up to further the interests of this reliable firm it contains much information of value to the practitioner.

ANNOUNCEMENT. E. B. Treat, Pub., N. Y., has in press for early publication the 1892 "International Medical Annual," being the Tenth yearly issue of this deservedly popular work.

Its corps of thirty-five Editors are specialists in their respective departments, and have been carefully selected from the brightest and best American, English and French authors.

It is the embodiment of what is worth preserving of the current Medical Journals of the world for the year, and will contain over 6,000 references to diseases and their remedies.

This Index of New Remedies and Dictionary of New Treatment, epitomized in one ready reference volume at the low price of \$2.75, makes it a desirable investment for the busy practitioner, student and chemist.

THE DON'T FORGET IT CALENDAR for 1892, issued by E. B. Treat, is one of the handiest we have received.

THE SANITARIAN is a 96 page monthly devoted to the promotion of the art and science of sanitation, mentally and physically, in all their relations; by the investigation, presentation and discussion of all subjects in this large domain, as related to personal and household hygiene, domicile, soil and climate, food and drink, mental and physical culture, habit and exercise, occupation, vital statistics, sanitary organizations and laws—in short, everything promotive of or in conflict with health, with the purpose of rendering sanitation a popular theme of study and universally practical.

THE SCIENTIFIC AMERICAN, published by Munn & Co., New York, presents weekly to its readers the best and most reliable record of various improvements in machinery, while the scientific progress of the country can in no way be gleaned so well as by the regular perusal of its pages.

SOCIETIES.

VERMONT STATE DENTAL SOCIETY.

THE sixteenth annual meeting of the Vermont State Dental Society will be held at Burlington, Vermont, March 16th, 17th and 18th, 1892. A cordial invitation is extended to all members of the profession. Reduced rates on all railroads.

THOS. MOUND, Rutland, Vt.,
Secretary.

NORTHERN OHIO DENTAL ASSOCIATION.

THE thirty-third annual meeting of this society will be held at the Hollenden, Cleveland, O., on May 10, 11 and 12, 1892. The profession is cordially invited. The program prepared is as follows :

"Syncope and Asphyxia," Geo. H. Wilson, Cleveland, O. Discussion opened by S. B. Dewey, Cleveland, O.; Chas. Buffett, Cleveland, O. "Plastics," J. E. Phelps, Chagrin Falls, O. Discussion opened by E. W. Poole, Cleveland, O.; J. R. Owen, Cleveland, O. "Diagnosis," J. R. Bell, Cleveland, O. Discussion opened by F. S. Whitslar, Youngstown, O.; C. R. Butler, Cleveland, O. "Crown and Bridge-Work," Grant Mitchell, Canton, O. Discussion opened by J. E. Robinson, Cleveland, O.; J. F. Dougherty, Canton, O. "Chemistry as Related to Dentistry," W. A. Siddall, Oberlin, O. Discussion opened by S. R. Pancost, Ashtabula, O.; F. H. Knowlton, Akron, O. "Infection," H. L. Ambler, Cleveland, O. Discussion opened by F. A. Douds, Canton, O.; H. F. Harvey, Cleveland, O. "Some results of early extraction of the first permanent molar," W. B. Conner, Akron, O. Discussion opened by J. G. Templeton, Pittsburgh, Pa.; E. J. Waye, Sandusky, O. "Non-Cohesive Gold and Tin," Talk by Corydon Palmer, Warren, O. "Queries," Answered by F. S. Whitslar, Youngstown, O. All questions to be sent to Corresponding Secretary before March 1st, 1892. Voluntary Papers—"Incidents of Office Practice." Clinics—"Gold and Tin Filling," S. B. Dewey, Cleveland, O.; C. D. Peck, Sandusky, O. "Tin Filling," W. H. Fowler, Painesville, O. "Treatment of Abscess (with Fistula) and Filling Root Canals," Henry Barnes, Cleveland, O. If you have anything of interest, please bring it to the meeting.

HENRY BARNES, *Sec'y.*

ORGANIZATION OF THE WEST VIRGINIA STATE
DENTAL SOCIETY.

THE above society was organized at the Windsor Hotel, Wheeling, W. Va., on January 7, 1892. An appropriate Constitution and By-laws was adopted and signed by the entire mem-

bership. Much enthusiasm was manifested over the new organization in a number of short and pithy speeches from various members.

The next meeting will be held at Wheeling, W. Va., on the first Wednesday of October, 1892, and yearly thereafter.

The following officers were elected for the ensuing year: President, Dr. H. H. Harrison, Wheeling; Vice-President, Dr. J. N. Mahan, Charleston; Treasurer, Dr. H. K. Jones, Parkersburgh; Secretary, Dr. Geo. I. Keener, Morgantown.

Board of Directors—Drs. J. N. Mahan, J. H. McClure, W. K. Cummings, C. E. Mason, J. E. Dowden, R. W. Teuer.

Committee of Arrangements—Drs. C. E. Mason, J. H. McClure, O. W. Burdats.

Publication Committee—Drs. George C. Milligan, C. A. Keim, Geo. I. Keener.

THE WORLD'S COLUMBIAN DENTAL CONGRESS

Will convene at Chicago on Aug. 17th, 1893. List of committees and other authentic information will be given our readers as soon as received.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

DR. J. W. HISEY, formerly of Massillon, O., is now located in Cleveland.

DIED.—Harriet, wife of Dr. John C. Whinnery, of Salem, Ohio, January 10, 1892.

DIED.—Dr. Tom Mayhall, of Connersville, Ind., January 1, 1892, of paralysis of the heart.

DR. CLAYTON LANUM and Miss Ida Patton, of Washington C. H., Ohio, were married Dec. 31, 1891.

DR. GEO. H. WILSON has removed from Painesville, Ohio, to Cleveland. His office is on Euclid Avenue.

DIED.—January 21, 1892, Lowry B. son of Dr. and Mrs. L. C. Adams, Dayton, Ohio. He was aged 9½ years.

DR. E. G. BETTY, Cincinnati, we are sorry to hear, slipped on the icy sidewalk and broken one of his knee-caps, January 31st.

THE POST-GRADUATE DENTAL ASSOCIATION OF THE UNITED STATES, will hold its annual meeting in April, in Chicago we presume.

DRS. WILLIAM AND LOUIS J. MITCHELL, 39 Upper Brook Street, Grosvenor Square, W., London, Eng., send best wishes for the new year.

DIED.—Thomas Watt, aged 81 years, at Xenia, Ohio, January 4, 1892. The deceased was a brother of the senior editor of the JOURNAL.

DR. O. N. HEISE, Cincinnati, has bought the office and residence built by Dr. N. S. Hoff at 82 Garfield Place, now occupied by Dr. E. G. Betty.

THE CANTON, OHIO, Surgical and Dental Chair Company's factory was destroyed by fire, January 30. Loss, \$30,000; insurance, \$9,000. They will rebuild.

DR. MILLER, Professor of Dentistry in the University of Berlin, has accepted an invitation to occupy the Chair of Histology in the University of Pennsylvania.—*Exchange*.

A NEW DENTAL JOURNAL will probably be issued by the dental society of the University of Michigan. This student's society is in a flourishing condition and doing creditable work.

"DR. C. R. COFFIN passed away Dec. 29, 1891," is the inscription on an excellent photogravure portrait by Van Der Weyde, London, "from his family, 94 Cornwall Gardens, London, W."

JOSEPH HEAD, M.D., D.D.S., has accepted the position of Assistant Editor of the *International Dental Journal*, and assumed the duties in the January number. Dr. Head is well known in Eastern dental circles.

DRS. HOUGHTON AND PRICE, Columbus, Ohio, were burned out by the Metropolitan Opera House fire, January 26. Loss, \$1,200; insurance, \$500. They will open their offices in the new Y. M. C. A. building, Third street, about April 1st.

TO REGULATE THE PRACTICE OF DENTISTRY IN OHIO.—Mr. McMakin, of Butler, introduced in the Senate Jan. 5, 1892, a bill to regulate the practice of dentistry in this State. It is the same as the measure that was brought before the last House.

IT WAS WARM.—"You ought to try a hot spell in Prattville, Arizona. Have to tie a wet sponge over your mouth when you go out in the middle of the day, to keep the hot air from cracking the enamel on your teeth and blistering your tongue. It gets hot down there I tell you."—JACK BENNETT in *Cin. Com. Gaz.*

DR. FRANK A. HUNTER, of Cincinnati, has bought property on the south side of Garfield Place, between Vine and Race, at \$11,000 cash. The lot is 17 by 97 feet to alley, and the house, which is an old two-story brick containing eight rooms, will be removed, and Dr. Hunter is having plans prepared for a fine four-story building, to cost at least \$15,000, especially arranged for office and residence purposes.

WILL IT REMOVE BROKEN NERVE BROACHES?—Charles F. Huber, of Hamilton, Ohio, has invented an electro-magnet used for the removal of particles of steel, iron or nickel from the eye. Dr. Frank Borden assisted in the development of the idea, and now he has the first instrument that has been made. It has the enormous power of lifting eighteen hundred grains of metal with but two volts of electrical energy.

CHANGES IN THE VALUES OF FOREIGN COINS as proclaimed by the Secretary of the U. S. Treasury from estimates made by the Director of the Mint, Dec., 1891:

Florin of Austria-Hungary, .341; boliviano of Bolivia, .691; peso of Central American States, .691; Shanghai tael of China, 1.021; Haikwan tael of China, 1.137; peso of Columbia, .691; sucre of Ecuador, .691; rupee of India, .328; yen of Japan, .745; dollar of Mexico, .75; sol of Peru, .691; rouble of Russia, .553; rouble of Russia (gold), .772; mahbub of Tripoli, .623; bolivar of Venezuela, .138.

THE FIVE ARAB MAXIMS.—Never tell all you know; for he who tells everything he knows often tells more than he knows.

Never attempt all you can do; for he who attempts everything he can do often attempts more than he can do.

Never believe all you may hear; for he who believes all that he hears often believes more than he hears.

Never lay out all you can afford; for he who lays out everything he can afford often lays out more than he can afford.

Never decide upon all you may see; for who decides upon all that he sees often decides on more than he sees.

“DR. J. W. DENNIS, Cincinnati, is a good shot and prefers heavy guns, his taste running to shot-guns. The best of his collection are two Scott and a Smith, all handsomely engraved and of fine quality. He has won many medals, but the most important one, for which he contested with Edward Peck, was lost. This match was for a diamond medal, and at the time, '88, created a great deal of interest. The Doctor was once left on the plains of Kansas for dead. Why his companions did not bury him no one seems now to be able to answer, but fortunately this important service was overlooked, and thanks to their loose methods of burial he is now strong, well and has done much to relieve human pain and suffering.”—*Cin. Com. Gazette*.

“EVILS OF LIVING AT HIGH PRESSURE.—High nervous pressure, whether in school or in business, on the stage, in the hurly-burly of social life, or in the seclusion of the studio, is almost certain to lead to the use of stimulants. The first is usually beer, followed by wine and whisky. When these have brought on painful nervous disorders, the most common of which are sleeplessness and neuralgia, opium, morphia, and chloral are resorted to. They give temporary relief, but it is as deceptive as the placid and inviting surface of a bottomless quicksand. The records of hospitals show that a large majority of the worst victims of these disorders come from the high pressure class. They simply overworked themselves, and resorted to these means of averting the just penalty.”

"EPITHELIOMA OF THE TONGUE bears some resemblance to syphilitic ulceration, and, by those not familiar with the two affections, an error of diagnosis may be made. The distinction may be established with certainty by contrasting the individual characteristics."

EPITHELIOMATOUS ULCERATION.

1. Commences near the side, and generally behind the middle of the tongue.
2. Pain sharp, lancinating.
3. Movements of the tongue restricted.
4. Articulation imperfect.
5. Progress rapid.
6. Appears at or after middle life.
7. Induration precedes ulceration.
8. Fætor of discharge very offensive.
9. Not influenced by treatment.
10. Not necessarily any sign of syphilis.
11. Involvement of the lymph-glands common.

SYPHILITIC ULCERATION.

1. May occur at any part of the organ, generally at the dorsum.
2. Little, if any, pain.
3. Movements unembarrassed.
4. Articulation perfect.
5. Progress slow.
6. Appears before middle life as a rule.
7. Induration succeeds ulceration.
8. Fætor not necessarily present.
9. Improves under treatment.
10. Always traceable to a syphilitic origin.
11. Involvement of the lymph-glands not common.

"HOW TO TREAT CHAMOIS SKIN.—Considering what a useful thing a chamois skin is, it is astonishing that there is so much ignorance as to the proper way of keeping it in order and lengthening its term of service. Chamois skins should never be left in water after being used, but should be wrung out and hung up to dry, being spread out carefully, so as to leave no wrinkles. They should not be used to wipe off colors, as paint stains form hard spots and make the skin wear out sooner. Chamois was never intended to wipe the face and hands with, which makes the skin become greasy. Never put a chamois skin into warm water; anything above lukewarm water will curl it up, making it become thick, tough and useless.

To bring back chamois that has been ruined by grease or paint, or used as a towel until it resembles a dirty old rag, the following is recommended: Take a bucket of clean water which has been made fairly but not too strong with ammonia; soak the skin in it over night and next morning rinse it out in pure water, after which use pure white castile soap and water freely. The whole operation, aside from the soaking, need take no longer than a quarter of an hour, and it makes the skin in reality better than it was before, having freed it from lint and other impurities."

WASHINGTON'S ARTIFICIAL TEETH.—A most interesting letter from Rembrandt Peale, in which the wide difference between his well-known portrait of Washington and that painted by Gilbert Stuart is accounted for, has just made its appearance in an unlooked-for quarter—*The Hospital Review*, a little monthly published in Newark, N. J., "in the interest of the sick and suffering at the Hospital of St. Barnabas." It was discovered by Mr. A. Q. Keasbey, one of the leaders of the Newark Bar, in the course of a law-suit for ex-Senator W. H. Platt, to whom the letter was addressed. Peale's portrait of the first president, a copy of which accompanied his letter to Mr. Platt, was made when he was less than eighteen years of age, and the following account of it was written nearly sixty years afterwards (Philadelphia, March, 1854):

Before the invention of *Porcelain* teeth on gold plates, it was the practice of the Dentist to fashion them from blocks of sea horse ivory. One of these

setts was made by the elder *Gardette* for General Washington, but it was fortunate for me, that he sat to me without them, as they were just finished & were clumsy & uncomfortable & distending his mouth, so that he finally rejected them, and it was equally unfortunate for *Stuart* that his Portrait represents him as he appeared for a short time with them—looking, as Judge Washington informed me, as if *rinsing* his mouth with water, and, as *Stuart* himself informed me, preventing him from holding any conversation, (tho' ignorant of the cause), so essential to the production of an animated likeness. I had another advantage. By sitting so early as 7 in the morning, I had his hair *before* it was curled & powdered by the Barber—after which hour Mr. *Stuart's* Portrait was painted.—*The Critic*.

THE INFLUENCE OF TOBACCO ON GASTRIC DIGESTION.—Dr. J. Ydan-Pouchkin reports a number of experiments which he has made in this connection on seven healthy individuals who were not habituated to tobacco-smoking, and his results are reported in the *Bulletin Général de Thérapeutique* for February 15, 1891.

He first examined the effects of tobacco on the gastric juice and the motility of the stomach and on the degree of absorption. For three days the author examined the gastric juice and motility of the stomach, noting the degree of motion of the stomach by salol, according to the process of Ewald, and the rapidity of absorption with the iodide of potassium, according to the method of Zweifel, during a second period of three days each, in which the individual smoked, respectively, twenty-five cigarettes daily. For three days after this period the author continued the examination of their gastric juice in order to determine the after-effects of the tobacco. His conclusions are embraced in the following statements:

1. Tobacco increases the quantity of gastric juice, but diminishes its acidity.
2. The quantity of free hydrochloric acid of the gastric juice is diminished under the influence of tobacco.
3. Proportionately to the decrease of the amount of hydrochloric acid there is an equal diminution of the digestive power of the gastric juice.
4. Tobacco likewise slows the action of the gastric ferments.
5. These modifications in the gastric juice produced by tobacco last for a period of several days.
6. As regards the motility of the stomach and its power of absorption, tobacco is stated to produce an increase of these functions.—*Thérapeut. Gaz.*

DEATH FROM "VITALIZED AIR."—Bernard Mohan, a glass-blower, aged 31 years, and weighing 202 pounds, came to his death in the office of Dr. W. S. Yates, No. 802 Penn avenue, Pittsburg, on Wednesday, December 30, 1891, about 3 p. m.

Dr. Yates testified before the Coroner, as follows: "I gave the man *vitalized air*, and examining his mouth found a tooth broken off and gums lacerated, but he got out of the chair several times while I was trying to administer the air, so I told him to come again and bring friends to hold him. When he came back with three men yesterday I gave him air and extracted a piece of the tooth. Ten minutes later I went to remove the other pieces,

but when he received the air he grew scarlet in the face. Then I tried to revive him, but failing, I sent for Dr. Dickson. It was only four and a half minutes from the time I gave him the air until I sent for Dr. Dickson. The vitalized air was taken from a tank cylinder in which it had been received from the manufacturer, The S. S. White Co. A piece of hose was attached to the tank; on the other end was a mouth-piece or reservoir, by which it is administered. *We use a vial containing from 20 to 30 drops of chloroform connected with the receiver*, but there was only a small quantity in the bottle yesterday, not enough to kill a canary. I had inhaled the air myself, as I always do before administering it. Its effects vary on different people; some lie quiet, others get violent and want to fight. I was never present at the death of a person from using the air."

Dr. A. F. Gentry, who assisted Dr. Dickson in the endeavor to resuscitate Mohan, testified to the details of their efforts. He also submitted a report in writing of the autopsy conducted by himself and Dr. J. Guy McCandless.

It showed the heart and other organs of the body to have been in good condition, except that the mucous membrane of the stomach and the spleen were somewhat congested and the kidneys showed the use of alcohol. The report concluded with the statement: "We are of the opinion that the man had no serious organic trouble in any vital organ."

Dr. J. Guy McCandless, the Coroner's physician, testified that there was a danger in the use of all anæsthetics, but they were generally used by the dental as well as the medical professions. In this case he was compelled to confess ignorance as to the cause of death. The Coroner asked the witness if he could suggest, as an official physician, any other step that could be taken to place the responsibility for the death of Mohan, to which Dr. McCandless replied: "I cannot. I think every point has been admirably covered and there seems to be no possible way of determining the actual cause of his death."

The verdict rendered by the Coroner's jury was as follows:

From the evidence the jury find that he had gone to said office to have a tooth extracted, and had been given an anæsthetic known as vitalized air for that purpose, and died under the influence of said anæsthetic, and that in our opinion death was due to exhaustion. And we further find that all possible precautions had been taken by Dr. Yates in administering said anæsthetic and trying to revive said Mohan, and further exonerate said Dr. Yates from blame.

We are indebted to the *Pittsburg Daily Dispatch* for the above facts in the case.

WHO'S AFRAID?—

WANTED—The public to know, after reading every article published as regards the Mohan case, I went to Dr. Yates' office next morning to have 12 teeth extracted. I was informed the Doctor was not in. I had not time to wait. I returned Saturday, took vitalized air, had my teeth extracted and felt no pain, having taken it the fourth time, and would advise every one who has bad teeth to take Yates' Vitalized Air, and have them out. Mrs. Mary Brown, Telephone Exchange, cor. Highland and Center avs., E. E.—Adv. in *Pittsburg Dispatch*.

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CONTRIBUTIONS.

SOME PRACTICAL POINTS IN REGARD TO METHODS
IN CONSTRUCTION OF CROWN- AND
BRIDGE-WORK.*

BY G. W. MELOTTE, M.D.S., ITHACA, N. Y.

GOLD in Holy Writ stands for truth, and of all metals that man has been able to manipulate, I think it stands at the head. Platinum ranks by the side of gold, and in the construction of crown- and bridge-work we have to deal with gold and platinum.

It is curious to note the effect that can be produced by placing a piece of pure gold on a piece of platinum and passing it through the rolls together, first heating them over a Bunsen burner. You find, if the surfaces are clean, there will be perfect welding, as perfect as you can weld two pieces of cohesive gold foil. This form of gold and platinum is used in backing up teeth, using pure gold to bring the tooth that is too white up to a richness in color that will serve the purpose. Another curious fact is, that pure gold under the blow-pipe, 18 carat—and I do not

* A talk given before the Ohio State Dental Society, Columbus, December, 1891.

know but any carat gold—can be readily welded. The surface must be cleansed by applying borax rubbed on a slate or piece of ground glass. I do not find it necessary in welding gold bands to put them into sulphuric acid, the borax answers every purpose of purifying the surface. To weld a gold band let the edges lap bringing the edges into perfect co adaptation, apply the creamy borax to the parts to be united, then with a flowing or soft flame of the blow-pipe bring the gold to a perfect redness when a concentration of the flame will cause a slight fusion of the surfaces and thereby welding.

I learned this method of welding gold from Dr. Bing, of Paris, a year ago last summer. I saw Dr. Bing do the work nicely, and I thought it would be a practical thing with me. Finding I could not do it very well at first, I laid it aside until Dr. Templeton visited me last August, and I showed him this method of welding coined gold. He seemed to be very much pleased with it, and was able to do it himself, and that gave me a great encouragement, and so from that time to the present I have welded all my bands. I use no solder except soldering on the caps in forming cusps. I do not like to use very much gold in the anterior portion of the mouth. By heating the gold after a band is formed and doubling it over, you can approximate the shape of a cuspid, and it is easy to weld. I have been able in one case to join a piece of gold on by making the upper edges free, then by careful manipulation of the blow-pipe I was able to add one piece after another until I made a cuspid with a thick end or point over the surface. I think this method of uniting bands much better than to use solder. Soldering produces weakness of the band when it unites at a slight heat. If No. 18 carat gold, it lowers the character of the gold in the main at that point. If the band should require stretching it may be done with a hammer at the point where the surfaces have been united in the weld without reducing the general thickness of the band.

We will now construct the anchorages for a bridge. The case is one involving the loss of the first and second bicuspid, together with the first molar, right side, lower jaw, anteriorly we have a sound cuspid tooth and a firm lateral incisor root; posteriorly the molar is sound, with no antagonizing tooth in the upper jaw. We will prepare the lateral root for a Richmond crown, the construction of which I presume you are all familiar.

The cuspid, to avoid excising, the crown may be banded according to a method which I have described in the December number of the *Cosmos*, in 1886, although for strength and permanence I would prefer to excise the crown. A tooth cut off and nerve pulp destroyed, banded and capped in the style of a Richmond crown with porcelain base gives stronger anchorage for a base than that of a banded cuspid tooth, or, in fact, any tooth banded. It is true, we have the prejudice of patients to contend with and possibly our own timidity in this matter of cutting off teeth. I am not afraid to cut off sound teeth, and think it would promise greater strength and permanency to do so.

But in this case the sound cuspid has been banded, the lateral root furnished with a Richmond crown, completing the two anterior abutments. We will now prepare the second molar for the posterior anchorage. In this case there is no occluding tooth in the upper jaw. We all know that it is important that the bulbous portion of a tooth should be removed and straightened, so that the band when fitted may pass down under the free margin of the gum, and you can crowd it down, you had better have it go beyond the point your judgment would seem to indicate rather than to have it too short. I think it is one of the sources of protecting teeth from decay. We will say, we have taken off the bulbous portion of the tooth. To obtund sensibility, it is well to add alcohol to water; it will also sharpen the corundum, so that it will cut more readily than otherwise, and of course you all know a sharp knife is better than a dull one.

Now, we have prepared the tooth with the exception of removing the cusps. In this case I said there was no occluding tooth. It stood alone, without any antagonism, and we are going to benefit the tooth by giving it something to do. In making my bands, I wrap a piece of gold around the tooth, lap it, hold it with the fingers, and mark it. I think most crown workers who do a great deal of bridge-work fall into the habit of doing it in this way without measurements. It is well enough for a man to measure when he first commences.

Now, we have got the size, and this (illustrating) will represent the gold band. I have got it lapped at the point you see. If you use solder instead of welding in the commencement, it will perhaps be well enough to take a little whiting mixed in alcohol and coat the surface, leaving a point just at the top, joining with

soldering there. This leaves the bottom of the band open. If you drive it on the tooth there will be less resistance, and you can fit a band to a tooth easier than if you had joined it from the top to the bottom or the whole length. I will make some dotted lines on the blackboard to indicate that the band is now on the tooth. It stands above here (illustrating), and the cusps remain the same as in their normal condition. You fill in the end with plaster-of-Paris mixed with sulphate of potash or salt and water, so that it will set quickly and fit the band in there, tamp it down so the air will bubble out. As soon as it sets carefully remove the band. The portion of the band not occupied by plaster-of-Paris is filled with fusible metal melting at 150° F. You cut it off with excising forceps and drop it into the band, then with a puff of the blow-pipe melt it. The plaster, of course, is now inverted. This (illustrating) represents the cusps of the teeth. You have placed your pieces of fusible metal into the band, and with a puff of the blow-pipe have melted them. Do not overheat, but barely melt the pieces of metal, and fill it a little more than full. As soon as it is congealed and hard, remove the plaster. You can trim gold down within a line or line and a half above the cusps, and then using 22 carat gold there will be no trouble with the hammer and burnishers to burnish it over into the cusps. You can take an impression in plaster and make a die and counter die with fusible metal melting at 212°, or the impression may be taken in moldine as described in *Cosmos*, Dec., 1886, which can be done quicker than with the use of plaster. After you burnish gold down into this fusible metal or cusps you make a die, swage out a piece, then with a small ladle placed in boiling water the metal will melt below the temperature of the water. It is better to do it in that way than to resort to the blow-pipe. I find in using the blow-pipe, that there is great danger of overheating and the pieces of metal unite with gold and spoil it. Let me say here by way of caution, if you try this method of fusible metal, and are not careful to remove every particle of it before you put your pieces under the blow-pipe again, you will wish you had never seen Melotte or anybody else. There would be a union of the fusible metal with the gold destroying the integrity of the gold. If you are careful in the operation to remove the diffusible metal perfectly, you will have no trouble in soldering on the little cap of gold into the gold

band. Now, you have made the crown with the exception of the band, contouring and fitting it to the tooth in the mouth, and you have taken an impression, you have done the whole work of making the crown, getting a crown that will go on and answer the purpose of the posterior abutments nicely.

A Member: Do you band before you put the fusible metal in?

DR. MELOTTE: I do not. It would be well to do it, but I have no time as a rule to do that. Perhaps it would be well for a man to do it when he first commences to do this kind of work.

A Member: Will you please tell us how you weld it?

DR. MELOTTE: "The Lord breathed into man the breath of life." I use some of it in connection with the blow-pipe, and by coating the surface with borax you are enabled to bring it up to the heat of fusion. The molecules of the upper layer to the lower layer will come in contact with heat and readily unite. If you are not careful you will spoil your band, so it is well enough to experiment with pieces of gold in soldering before adapting it in actual practice. In doing this work, it is well to have a blacksmith's heat, which is a general heat, heating your band up thoroughly before you concentrate the heat, otherwise it is better perhaps to point the flame a bit, heating it up until the material is ready to melt, then you get your welding. You may spoil a number of bands of gold before you are able to do the actual work, but you will be surprised how well you can do it if you learn to emit a nice flame with the blow-pipe.

A Member: Why do you use shellac on porcelain?

DR. MELOTTE: Because in burning it carbonates and gives you a layer of charcoal next to the porcelain. It protects the porcelain more perfectly than it is protected with the ordinary investment of plaster-of-Paris.

DR. HARROUN: I am in the habit of coating the surface of a tooth to prevent the plaster-of-Paris from melting. It forms a coating there, so to speak, prevents the plaster from shrinking down, and forms a roughness on the surface.

DR. MELOTTE: That point was suggested to me by a dentist of Utica, in combining the porcelain and gold. He told me that was the course he pursued. I find it a nice thing to do. I am conscious of the fact that with porcelains you cannot be too careful to keep them from contact. Considerable expansion and con-

traction take place when the molecules are under the excitement of returning to their primitive condition. Of course there is great danger of breaking. Dr. Starr suggested that pieces of mica be put between the porcelains we use. In olden times it was suggested that a piece of tissue paper or writing paper put in between would prevent breaking. I think mica is a very good thing indeed for this purpose. We should see that the porcelains are not in contact when they are invested.

I have reached a point now where I have constructed my abutments. I call your attention to one of the most important points connected with the work, and yet one that is simple—taking the impression. If this tooth (illustrating) leans toward the anterior teeth, or if there is a wedge-shape or straight space, you may have trouble from breaking of the plaster, making your impression imperfect. To obviate that, I take a piece of modelling compound and press it with my fingers between the teeth. I remove it, put it into cold water, then with a knife I trim on the buccal and lingual surfaces, leaving them a little narrower at the top. Before placing it back, I warm the surface, and direct the patient to bite down on to it, leaving an imprint of the occluding teeth. Be careful to see that the patient bites correctly. Now, remove the pieces again and trim, so that the modelling compound will come in contact with the anterior and posterior portions of the band, but not to cover any more than you can help. You have trimmed it and replaced it. It is in position. The patient has bitten down upon it. You may let them try it again if you are certain they will bite in the same place. The imprint of the cusps are there. Now, you take an impression in plaster, the modelling compound being in position. You take your plaster, and if the compound remains in the mouth and does not give way with the plaster, remove it and put it in its place. The model drawn on the board is but a rough sketch. It represents the two centrals and a lateral together with a cuspid with its band on. Now, in taking an impression, I find that the imprint of this tooth is in the impression. There are few men who practice making impressions with bands on preparatory to making a restoration or bridge; they take impressions in modelling compound. They may be experts in that particular line, and they may succeed in a small piece of bridge-work, and may with their method save time, but I would not

attempt to do it. A gentleman said to me a short time ago, "It takes so long to remove a plaster impression from the model," and that is one of the reasons why he does not use it. Then again, sometimes patients object to certain things you want to do. My patients do not object, because I do just as I have a mind to. As a rule I do, or else I do not do the work.

I have taken the plaster impression, and am about to pour in to it plaster-of-Paris to make my model upon which my bridges are constructed. I take two pins and place them into the impression of two of these teeth a little ways (illustrating) apart. The heads are standing up, and the impression is before you, and you are looking down into the imprints of the teeth. I take the pins, place them in the cutting edge of the teeth in this case, then I take some little bits of fusible metal and cut it off with excising forceps and place them into the imprint of the teeth, and with a puff of the blow-pipe fuse the metal, and jar it down same as with plaster, and then you have got the tips of the teeth like that which you see represented on the board. Dr. Templeton has three or four combined tips that I removed from a case while he was with me. He will show these tips to you at my clinic this afternoon. I will take an impression of some one's mouth and show you the method of making these tips. You cut off the ends of the pins and leave the dowels around them, leaving the pins one-half or one-quarter of an inch in length, then fill up the model with investment material, plaster of-Paris and marble dust. One-third marble dust and two-thirds plaster-of-Paris is about my formula. Your plaster is hard, you cut away and down on to these teeth, cutting away the plaster impression you cut to the tips. Being metal you are in no danger of marring them. I have got to a place now where I find my modelling compound is in the same position with the cusps upward (this being a lower case) that it was when the patient left the imprint. You readily see that. When I have taken an impression of the occluding teeth (and I take it with plaster), I pour in fusible metal quickly. If I do not get a perfect occlusion, I can pour it several times; I get it quicker than it takes the plaster to set.

The advantage in standing before you and speaking to you in this way is, that I am enabled to command the attention of every one of you at the same time, and am able to state points

in the construction of this work which would be very difficult for you to see at a clinic, and it would be likewise difficult for me to perform in the time allotted for a single clinic. I could not do it. There is not a bridge worker in existence (if there is one I would like to see him) who has not had more or less failures, and if he has been at work four or five years in this line and has not had quite a good many failures, then he must be a better man than I am, and such a man is in danger of toppling over. Our successes flatter us; our failures halt us, and make us consider the ground that we have been over, and make us a little more careful in the future.

A Member: Will you tell us how you make a dummy?

DR. MELOTTE: I will state first what happened in my office. My assistant was working for an elderly gentleman, and he got to the point of adding the dummy, and he turned to me and said, "What shall I do with the dummy?" The man looked up at him with daggers in his eyes, but the young man gave him to understand that he did not mean him.

I do not know how they came to be called dummies, unless they were considered dummies who worked at them first.

I will make the first dummy, and I shall prefer to take an ordinary cuspid tooth, and in grinding it I may find it is too long from the pins up to the cutting edge. Dr. Richmond showed me this method of grinding a cuspid tooth to keep the proportions perfect—that is, to grind from the lingual toward the labial surface, as perhaps you are able to see this tooth (illustrating). You take a tooth that is blunt on the end, the advantage is that you make it upon the porcelain, so that when you add gold you have got a better looking tooth than you would otherwise have; then, besides, you first put a piece of backing on, and this backing and the tooth are ground on the surface, the backing being beveled with the porcelain. You take a piece of thick gold, and where you want great strength on the cutting edge and desire to prevent the teeth from breaking, I should use gold that has about 5 per cent. of platinum, using No. 23 or 24 and let it extend about a line above the cutting edge, wax it on when it will be ready for investment. You take a die and swage out a bicuspid, take one of the bicuspid dies, swage out a piece of gold, place it on, bevel toward the outer cusp, so that it will fit on to the tooth in the manner in which I hold this (illustrating), wax it

in place and invest it, varnishing it at first. Invest in plaster-of-Paris, marble dust and sand, then after the investment has set, dry it out, melt out your wax, add your gold carefully; you may put in tips of gold coin or filings, fill it up with filings and solder, and in that way you have got your dummy made for your first bicuspid. Proceed with the next and with the molar in a similar manner, and you have your dummies, which, of course, you have tried on and arranged with a view to the occluding teeth. Of course, this work needs care and time, and I cannot find language to describe to you definitely just how to proceed. There is an important point I want to make, and that is that each one of the dummies should be ground, the porcelain and the gold, so that they will touch the ridge, and especially in those cases where there are any bridges which fail to have touched, because the tissues will kindly form around the points of contact and you need not be much afraid of inflammation, and if you get a little hypertrophy you can allay it as well with a saturated solution of salicylic acid as anything, and after a little the gum will kindly form and it comes up around rather than shrinks away from the dummy.

SOLILOQUY OF A PLASTIDULE.*

BY C. M. WRIGHT, D.D.S., CINCINNATI.

I CAN'T go back to the genesis of plastidules any easier than can that special organism known as man satisfactorily account for his origin, and the origin of his dwelling—the earth.

Man has studied the surface of the earth and to a certain extent the position of this revolving ball in relation to other revolving bodies which he sees by reflected light all about him in the firmament.

Man has studied himself as far as he can. He has kept tolerably good records of his actions in various countries and times for a few thousands of years. He has been very curious about his own body too, and has devised some ingenious instruments to improve his eyesight, and then he has picked his relations to pieces after they have died, and made all sorts of experiments with the different pieces. He has stained and dried and moist-

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

ened and teased and sliced and illuminated these pieces till he has been able to get down pretty close to bottom facts.

He has discovered protoplasm and for years has watched it in its motion and growth in other creatures.

He has discussed it and quarreled over it and guessed about it and has believed a great many things that he could not prove. These guesses he called hypotheses and builds his faith upon them. He has made some pretty shrewd guesses too, for he has guessed that we, the *molecules* of living matter exist, which is quite true, and he has even given us a name "Plastidule." We do not call ourselves 'Plastidules,' nor do we consider it a particularly attractive name, but when man makes such strenuous efforts to get acquainted with us; when he spends years in study to find us out; when he works so patiently with all his knowledge, accumulated mite by mite, for so many years in endeavors to see us as individuals, and acknowledges that he never expects to know more about us than can be gained by observations of what we do when congregated as squadrons, or entire communities in masses which he calls proto-plasm, why, we naturally feel kindly toward man and do not quarrel with the name he has given us. We are to him part of the great *unknown*.

We are past finding out. We seem to occupy the same relation to man, as far as his perception goes, as does the God to whom he bows. Man studies God through what he calls the "handiwork of God," and he guesses about his "Creator," and forms images of Him in his mind of how He looks, and how He feels and thinks. He has no assurance that these images are exact—in fact he has every reason to believe that they are not, and yet he holds on to them and treasures them. He addresses prayers to them. He kneels down and supplicates, each man for himself, this god, a separate image of which he has in his own mind, though he has never seen the original, and believes that his addresses will be listened to and in a measure answered.

Man can not see God but he thinks he knows that his God exists. Man can not see us—the plastidule—the molecule of protoplasm—made up possibly as man believes of still more minute and uncertain things which he calls atoms, and yet he thinks he knows that we exist, and he half suspects that we have very much to do with his past, present and future as a so-called organized being.

He does not worship us. It would look very ridiculous to us as well as to man if human beings should build churches with tall steeples and meet every now and then in these churches to offer up praise to us—the Plastidules.

Still we have the satisfaction of knowing that as men study about us more, as they spend more time guessing about us and thinking about us they have a very distinctly increased reverence for us. They reverence us as the Unknowable—the unknowable, though named, which so mysteriously envelops the life of man.

He cannot define *life*, a word which he uses every day and thinks he knows about. He knows something about the manifestations of living beings and of living matter, and he strongly suspects that back of all these manifestations these phenomena which he studies is the plastidule. Well, so far, at least, he is right. There is a strong likeness existing between the life history of a man and the life history of a plastidule, between men and their relation to mother earth, and plastidules and their relation to mother man. The man had ancestors away back in the dimmest past and during all that time, and now, and ever, he will be only a part of the earth, the origin of which is said to be the heat of the sun. Every child born to man, whether he be at present of high or low degree in regard to health, or wealth or position, whether he is called king or whether he is called peasant, is an animal with a pedigree which we, the plastidule, can trace so far back into the dim past that even a description of the surface of the earth and of the condition of the atmosphere at that time can be but vaguely impressed upon the mind of the present man; a time when with difficulty we, the plastidules, rearranged the crude carbon and the gases oxygen, hydrogen and nitrogen, the molecules of which are so unstable, into a diet for ourselves so that we could exist as individuals and make up communities like the cell, and manifest a peculiar kind of force correlated to all force and by slow and painful adaptation and re-arrangement of these same molecules and by constant effort toward perfection and harmonious action among ourselves we were enabled to unite as cells with special duties until we developed the organism which we know as man.

It has taken us myriads of years to accomplish this and yet we have remained the same and our work is going on. We are the unknown, the unknowable. Our laws of life govern all life.

We exist and have always existed, for we are the *breath of life* that was breathed into the historic Adam. As the breath of life we inspire all so-called living matter whether in a one-celled micro-organism, a grain of corn, a majestic tree, a crawling worm, a buzzing insect, a chattering ape or a highly developed, intelligent man, and in this dominant creature man, this breath of life pervades the nerve cells in the cortex-cerebri making memory, imagination, reason, judgment, conscience possible to him just as it does the cells which by other modifications elaborate the shape and character of each individual's finger nails, and we are so intimately associated in each organism that the microscopic seed of that complex organism (which when properly planted is capable of producing another and similar complex organism) bears in its minute body, the impress of every plastidule in the entire body, the impress, not only of the direct parent of the seed but of past generations of parents and of all the possible crossings and variations and ramifications of past ancestral impressions. Man knows this fact and discusses the phenomena of atavism, of heredity, of a tendency to revert to a previous type. We are not only intimately associated, we plastidules, with every past and present impression made upon ourselves as we exist and have existed in the tissues high and low of an individual and his ancestors, but we are one with all other plastidules in the entire world of organisms and man is correlated to all not by blood, but by the breath of life.

Through us, the plastidule, man then is a part of all life and the nearer he approaches harmonious correspondence the nearer will he fulfill his destiny.

HEREDITY.*

BY A. O. RAWLS, LEXINGTON, KY.

FROM a scientific standpoint, the study of heredity virtually includes that of life in all its forms, from the most simple or lowest orders to that of the highest and most complex organization. It embraces not only all biology, but adds other problems such as diversion or variation from typical forms and reversion to earlier progenitors, etc., or remote ancestors: in brief it includes the origin of life and species.

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

While an elaborate and detailed consideration of the various phenomena appertaining to this subject in its entirety, as understood by numerous scientists from the days of Lamarck and Darwin, down to the present time with its Spencers, Tyndalls and Huxleys might not be uninteresting, yet the necessary scope of such consideration would preclude its appropriateness before this body. Some few among the world's recognized lights have delved their lives to accomplish that which they have upon this subject, but the key which would unlock their store-house of knowledge is not made in a day.

W. K. Brooks, in his *Law of Heredity*, opens the first chapter with the following statement, to-wit: that to the ordinary unscientific reader the word heredity may perhaps suggest nothing more than a few curious cases where an odd peculiarity of the parent has been transmitted to the children, or it may recall the hereditary transmission of a tendency to certain diseases, or the mental or moral idiosyncrasies of the parents.

This is true if we take for granted his statement that a few curious cases where an odd peculiarity of the parent has been transmitted to the children means many and are of a physical character, and he surely means this for his statement relative to the transmission of mental and moral idiosyncrasies includes all else transmissible.

The foregoing conceptions of heredity by the common mind or unscientific reader, are virtually termed by scientists odd cases, tricks and accidents of heredity. Now while it is with these tricks of life's variation we are the more cognizant, and should bend our efforts looking backward for a solution, I cannot help but animadvert to the ideas of past research which would term to-days changes, tricks, and accidents of heredity of progenitors and environment, and associate the earliest known specialization of life with anything else but what such research has pleased to name tricks and accidents. They are results of such common observation indeed as to be recognized by the unscientific mind, but nevertheless based upon laws as absolute and unvarying as are any other results growing out of natural selection and environment.

As progeny of the past we have received the sum of impress mentally and physically of countless ages, and our children will receive the same added to which will be the effects of a weak-

ened or strenthened or in any wise changed condition of demand upon special organs or functions growing out of the hidden tendencies to variation of their immediate ancestors and environment differing from that of the latter. Since writing the above, I find in W. K. Brooks' work on heredity chapter, "evidence from variation," the following, to-wit: "We can also understand how a tendency to vary may be hereditary, for if certain cells of the body vary, they will exercise a disturbing effect upon adjacent or related cells, and there, transmitting gemmules, will hand down the tendency to vary to succeeding generations."

In his recapitulation and conclusion Prof. Brooks has given us an additional statement in close association with the leading idea in the above, viz.: that "there are many reasons for believing that variations under nature may not be so minute as Darwin supposes, but that evolution may take place by jumps or saltation, and that according to his view a change in one part will disturb the harmony of related parts, and will cause their cells to throw off gemmules. A slight change in one generation may thus become following generations a very considerable modification, and there is no reason why natural selection should not be occasionally prevented with great and important saltations."

These latter statements are in perfect consonance with views which I have expressed at different times in the past relative to the comparatively rapped transmission of the results of impress by certain influences upon various organs to the generation in which they originated. It is true that most authority upon the subject of biology recognize the fact that variability and environment operate so slowly that ages upon ages are required to evolve from generic types very marked changes of organisms as to form or function.

Probably the most prolific animal known to us, and therefore the best suited for experiment, looking to changes of form in their organization, is the white mouse. By selecting from a litter of the latter a male and female, the largest and strongest of the lot and removing the external ear and tail, breeding them, and continue thus to select the healthiest aud best from each continuous breeding, and depriving each of ear and tail, you can have at the end of about eighty breedings mice without the caudal appendage and external ear.

The Jewish nation evidently evolved the hooked nose so

common to that race through their form of salutation; that is, by taking the end of that organ between thumb and finger and bowing their heads and bodies forward and downward. The Celtic race probably acquired the short and turned up nose by the constant wiping that organ upward with the salve of the hand.

The Indian or other wild tribes have kept up the inheritance from the generic type of pigeon toes by turning their toes inward, the better to balance their stooping bodies while in pursuit of game or hiding from their foes.

The Mongolians, under subjugation to the Tartars, were made to wear their hair up from the temples and fasten it tightly over the top of their heads, which became a fixed habit and resulted in time in obliquity of their eyes.

The evidence herein adduced for the purpose of presenting an idea of how external organs may be caused to vary, or conformations to change by habit, custom and environment, either forced or of free selection, are, I admit, by no means complete, but sufficient, I trust, to indicate the possibilities in this direction. Some one, however, may feel like exclaiming with the itinerant dentist from the vicinity of Jamestown or Canada, who had dropped in at a meeting of the American at Niagara, and, sitting in the back part of the room, had been listening attentively to scientific sentences, unabridged, from the lips of J. Foster Flagg and our lamented Atkinson, when, upon looking at his watch, he innocently remarked to a neighbor apparently of the same convictions and species, "Wonder when they'll begin on dentistry?"

W. K. Brooks, *Evidence on Variability from Intellectual Differences*, says, "that human advancement is of course widely different from the slow progress of the lower forms of life, but is fundamentally the same." In his closing chapter also the following: "According to our theory of heredity, a change in one part of the body is in itself a cause of variation in related parts; and as changes thus tend to occur where and when they are needed, the time which is demanded for the evolution of a complicated organ by natural selection is brought within reasonable limits, and one of the most fundamental objections is thus completely removed." Now if this be true, and we doubt not it is, for we believe Prof. Brooks is the best exponent of past research

on the subject, and the most thorough reasoner extant on its intricacies, then does it not become our duty as specialists, laboring in the field of conservation of important organs for those of our present generation to have in view also an improvement of the form, structure and health of such in coming generations.

A study, for instance, of any undesirable physical peculiarity of teeth, jaws and face of a family, the first, second and third generation of which are usually within the scope of our observation, will not only enable us to practice that which comes within the pale of our calling with more certainty of scientific results; but if we would live and labor not alone for those about us, I believe we can be the means of modifying the tendency of our generation to transmit its unhealthy variability in tissue or disagreeable conformation of organs, and thus hand down to future generations a better basis from which to continue further labor in the line of health, beauty and usefulness until the type is near perfection.

Day by day we are brought face to face with an inheritance of diseased tissue abnormal organization, and therefore disturbed function. With a fair knowledge of the laws of heredity and peculiarities sometimes attending family and social proclivities and variation, how much better would the dentist be qualified to intelligently and satisfactorily handle such conditions; indeed, with how much more certainty could he diagnose the character of disease and prognosticate the results of an operation.

ICHORÆMIA.*

BY C. R. BUTLER, M.D., D.D.S., CLEVELAND, O.

THE subject of ichoræmia has excited of late the attention of the most careful investigators, so I venture a few thoughts on conditions of the mouth that affect the general system.

It is a common saying there is more or less trouble with the teeth from the cradle to the coffin.

Permit me to remark that dentition, while it is a physiological process, is one of continuous irritation. The family physician has opportunity to observe the effects of hyper dental irritation, and when it is in excess, the skill of the physician, surgeon, and

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dentist, is in demand to modify or control it, the same as in any other part of the body, and the case should be treated on general principles.

If it be of a local nature, showing a tense tumefaction of the gum over an erupting tooth, the lancet may be used with good effect, making a crucial cut if it be a molar, notwithstanding authors and practitioners widely differ.

It may be of a more general character and attributable to a faulty development of the osseous structure as a whole. If so tonics will be more efficacious than the lancet.

The weaklings are the ones that tax to the highest skill, and to this class we shall confine the most of our remarks. They came from the humble cottage and palatial home, with miserable structured teeth from first to last.

Of late considerable has been said about the application of the nitrate of silver in powder or solid crystal to the partial enameled and decaying teeth, deciduous and first permanent molars. The practice is not all new, but the demand for something beyond the ordinary means warrants us in giving it more than an indifferent trial.

Many of these desperate cases only come to the notice of the physician and dentist when the suffering becomes unbearable from an exposed dying or dead pulp; ulcers in the mouth, and the formation of pus pockets about the teeth that become points for infection of no trivial character.

The sub-maxillary glands are often affected, and the internal carotid and internal maxillary arteries are ready channels for the distribution of septic poison, giving a train of symptoms familiar to us all.

Abscess, associated with the temporary teeth, is a serious item, especially if the child be delicate or sickly. The germs of the developing permanent teeth may be destroyed and necrosis of the maxilla in part result. Opening of the pus pocket or abscess does not always close the trouble. Thorough washing out with phenol sodique, dilute, or any mild antiseptic, also drainage for a sort time may be necessary.

Some might suggest immediate extraction would be demanded; that is not the best practice in many cases; the child needs teeth for mastication as well as the adult.

The etiology of the various lesions of the tooth structure is

not definitely settled or demonstrated. And there is no provision yet discovered whereby a defect, disease, or fracture even, may be repaired as in other bones, and yet they are vital organs.

In and about these diseased teeth septic matter is found, and extreme care should be exercised by the dentist or operator, not to poison himself or others with the instruments that he is using daily.

From personal experience I may speak of the pain and prostration following a wound in the index finger of my left hand. In about three days after the inoculation there was great tenderness with stinging pain in the finger, extending up the arm into the back of the head; an abscess formed about the site of the wound that had to be opened. The dressing used was the corrosive sublimate, 1 to 1000; solution, hot water. The general prostration continued for weeks.

Dr. W. D. Miller cites a case of chronic pyæmia as the result of a wound by a dental instrument where hundreds of abscesses formed in different parts of the body.

Cases have come under observation within a few months that showed symptoms of infection from uncity instruments in extraction.

Whether this infection be microbic, or bacillic, I am not here to assert or prove; but I am satisfied that poisoning does occur of a serious character.

"Trained nurses" is becoming quite the thing; they should have a clean healthy mouth and teeth, especially those that have the care of young children; also they should appreciate the importance of hygiene of the teeth and mouth, if the child is afflicted with a wasting disease or protracted fever.

WHAT VALUE HAS ARGENTI NITRÁS AS A THERAPEUTIC AGENT IN DENTISTRY? *

BY DR. E. A. STEBBINS, SHELBURNE FALLS, MASS.

THE object of this paper, and the presentations of these patients and specimens, is to bring the subject to the notice of the profession more fully, and stimulate to further investigation, and, if found practicable, to bring it into more frequent use.

* Read before the New Hampshire Dental Society, Manchester, October, 1891.
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Allow me briefly to take you over some of the way I have come in my study and experiments. Every observing practitioner who has had a few years' experience has seen teeth that have begun to decay on the labial or buccal surfaces, then, from some cause, the decayed portion has taken on a very dark color, and the progress of the decay has ceased.

The same conditions have been observed in approximal cavities when the adjoining teeth have been extracted; also when, by mastication, the teeth have been worn off till approximal cavities have become exposed. In some mouths a large number of such cases may be noticed.

In the process of change, the ordinary color of decaying tooth-substance becomes darker and darker, till, in some instances, it is nearly black. It also becomes quite hard.

These "black spots" do not decay until, by some means, the "crust" is broken, or disease approaches from an adjacent portion of the tooth.

We are all familiar with the appearance of cavities which have been filled with amalgam.

Can this black-crust condition be produced instantly, and at will? Will it remain? If so, we have a boon of great value.

The constituents of decaying tooth-substance, the elements of the remedy, and the compound formed by the union of the two, with practical results, will be evidence towards a solution of our query.

The "United States Dispensatory" says of argenti nitras: "The solution stains the skin of an indelible black color, and is itself discolored by the most minute portion of organic matter, for which it forms a delicate test. The affinity of this salt for animal matter is evinced by its forming definite compounds with albumen and fibrin. . . . When nitrate of silver, in a pure state, is brought in contact with living tissue, it acts as an escharotic. Owing to a formation of a dense film of coagulated albumen, the depth of its action is very limited; the albuminous coating is at first white, but soon becomes blackish, owing to the reduction of the silver."

The "New American Cyclopædia" says: "With albumen, fibrin, etc., it forms insoluble compounds. . . . From recent microscopical examinations very carefully made by Mr. T. J. Herapath, of England, upon some obscure marks found upon

wrappers of mummies, there is reason to believe that the ancient Egyptians were acquainted with the compound of nitrate of silver."

"Taft's Operative Dentistry" says, under "Treatment of Sensitive Dentine":

"Nitrate of silver.—This salt is a powerful caustic, whether applied to soft parts or bony tissue. Its action is somewhat complex. Nitric acid is liberated by the decomposition of the salt when in contact with organic matter. Nitrate of silver has a strong affinity for albumen, uniting with it without difficulty, and the compound thus formed is soluble in nitric acid. When the nitrate is applied to the skin, the immediate result is a whitish mark, caused by the union of the salt with the albumen of the cuticle; but this soon turns black by the reduction of the salt and the liberation of the oxide of silver, when for each atom of this set free there is liberated an equivalent of nitric acid. There is here, then, an agent that acts promptly on the gelatinous portion of the tooth, destroying vitality to the extent of the combination which takes place, and that, by the decomposition of part of the salt and the consequent liberation of part of the acid, also acts with energy on the calcareous portion. The compound formed by the nitrate with organic constituents of the tooth is insoluble, except with a few substances, and therefore protects the adjacent parts; and the precipitation of the reduced oxide on the surface, it is claimed, affords some additional protection.

"The insolubility of the compound above mentioned prevents an absorption of the nitrate by the dentine, and renders its action necessarily superficial. When the nitrate is neutralized by a union with it of an equivalent of the constituents of the dentine, no further chemical action is possible. The compound formed by this union is soluble in a dilution of the nitrate, and if this be applied in too great a quantity there may be a larger loss of substance than is desirable or at all necessary; for as long as free nitrate remains in solution in the cavity, the insoluble compound is not precipitated, and the surface is therefore exposed to the continued action.

"It is preferable to employ the nitrate in the solid state, or, when this is not practicable, in a concentrated solution, and small quantity, rather than in a copious dilution and repeated application.

"From the observations already made, it is quite evident that no harm can result to the tooth from a proper application of this agent, beyond the portion of it immediately acted upon. The nitrate cannot be absorbed by dentine, but it stimulates the adjacent dentine to more healthy action."

Following is a letter from Professor Charles Mayr, of Springfield, Mass., in response to my inquiry as to what the chemical effect of nitrate of silver is on decaying tooth-structure. This is not the first time Professor Mayr has contributed valuable information for this society, and for which we hold him in high esteem.

"In regard to the subject in question I would say that many points have to be considered in regard to the effect of nitrate of silver in tooth-substance. The first is the purely chemical effect.

"Now, decay contains lactate of lime (accepting Dr. Miller's analyses, which agree perfectly with my own finding) and organic matter,—the whole permeated by ravenous microbes. The chemical action of silver on the lactates is not very rapid, but after a short lapse of time they are oxidized and the silver reduced. On the organic matter the nitrate of silver acts much more rapidly, being reduced by it, and of course in its turn destroying the organic matter, but, most of all, it acts as a powerful germicide. Silver salts are nearly as hostile to germs as mercury salts, but have the increased advantage of also destroying the products of the germs, which mercury salts do not to this extent.

"In regard to its effects upon the dentine, I should also say that the various chemical constituents of the dentine have to be considered.

"On the phosphates of lime the action is slow, but terminates in forming nitrate of lime and phosphate of silver.

"The carbonates are rapidly acted on, forming carbonate of silver and nitrate of lime.

"The decomposition in both cases is not complete. A small amount of undecomposed silver salt would remain on the spot touched by the nitrate of silver, and a small amount of undecomposed lime salts. The organic substances would slowly be destroyed by the nitrate of silver.

"Of course there would also have to be had the physiological action of the dissolved silver on the nerves abutting at the spot touched.

"It is not improbable that the silver acts by decomposing

the chlorides,—potash and soda combine with the nerve-substance essential to its comfort and well-being; at the same time, it would coagulate the albumen in the nerve-substance, thus forming a plug consisting of albuminate of silver, chloride, phosphate, and carbonate of silver, which plug would be an insulator against pain, and would be equivalent to destruction of the nerve-tissue for the space acted upon.”

The use of a solution of the salts has been ineffective in my hands.

For sensitive dentine or cementum I use the salts in the same way as for decay. Senile teeth from which the gum has receded and become inflamed, and the exposed cementum is sensitive on the application of a tooth-brush, are very much benefited by this treatment. The brush can be used with impunity, and the gum becomes harder and much more nearly normal.

Dr. R. R. Andrews has demonstrated very clearly that in some cases decay extends very far into the teeth when the periphery is small. If the decay reaches the pulp the caustic effect of the silver will disturb the quiet of that organ and cause pain. My experiments thus far teach me to be cautious in cases of deep decay.

Where the decayed portion is very thick, coagulation of the salts and organic matter may be so complete as to stop the advance of the union before the deepest lamina is affected.

Argenti nitras is not a panacea for every ill known to the dental profession. In some patients' mouths the visible effects, will disappear entirely in a year. In other cases it will be effective in part of the cavities, while in other cavities of the same mouth it will be partially effective or not effective at all. What are the causes of these different results?

A serious objection to the use of this agent is the color it produces where there is the slightest decay. Where the tooth is not decayed no change is produced.

Some patients would object to have it applied to any tooth on account of the color. Others would be pleased to have it used where the cavity would not be seen. But there are thousands who must have some such treatment, or become edentulous. Children who are too sensitive to have teeth filled, or whose parents have not the means to pay for filling, must have some relief, or suffer untold misery, and lose their temporary teeth too

soon, thereby involving themselves in life-long troubles. Having witnessed the relief of so many children from constant agony, and their exemption from toothache for years, by the application of this agent, it seems to me it is worthy a larger place in our practice.

For several years I have been testing its effects as opportunities have been presented, though not in that thorough and systematic way I would desire.

By the patients, the specimens I will exhibit, and the cases to be related, I will endeavor to present a fair representation of the subject as far as my investigations have gone.

I will give an account of five cases.

The patients present may be seen, with records of their treatment. The specimens also will be passed around attached to cards on which are the records thereof.

CASE I.—F. H. M., a man about thirty years of age. September 6, 1888, I treated superficial decay in the labial surface of superior cuspids and first right bicuspid; also buccal surface of first inferior molars,—all near the gum. None of these cavities have decayed since.

This patient has twenty-eight teeth, all but six of them having from one to three fillings each. Business keeps him from attending this meeting.

CASE II.—Aged about thirty-five years. Right inferior second molar had a small cavity in buccal surface treated. One year and three months after, decay had begun just under the enamel. Recauterized. One year and nine months later, found decay again aroused just under the enamel. On excavating for filling, found that the decay had not gone deeper,—only enlarged the periphery. Superficial decay on the left molar of same mouth appeared to have kept perfectly after two years and nine months.

CASE III.—The following communication is from W. H. Ashley, M. D.:

“Some twenty-odd years ago I was kicked in the mouth by a horse, butting both lips through and splitting the alveolar process of the superior maxillary. From that time I suffered more or less trouble with my teeth. The lower ones frequently caught over the upper ones, severely wrenching them during mastication. The upper teeth were strapped outward and sawed asunder to give room, one having been removed.

"Years afterwards pyorrhœa began to manifest itself, causing much suffering, and, one by one, loss of teeth. Dentists of Michigan, Missouri, Kansas, and New Mexico treated the mouth, but deemed it sufficient to clean the teeth thoroughly beneath the gums. Finally Dr. Olney, of New Mexico, decided to remove the teeth that were beyond hope, and try the potash remedy. After thoroughly cleansing the teeth, strings were wet in liquor potassæ, wrapped around the teeth, one by one, and thrust beneath the gum as far as possible, being left *in situ* until the gum became purple and the thin edges dropped away. For a time this allayed the pyorrhœa, but only for a time, while the retracted gum exposed the dentine, and the irritation resulting caused extreme suffering. I could eat nothing sweet or sour, hot or cold, and even the cold air of winter was painful, forcing me to obey the wise injunction to breathe through the nose and keep the mouth shut. Fruit I could not eat. My love for apples and oranges, etc., was lost in the suffering they caused. All the comfort I got was in Shakespeare's picture of old age *sans* teeth, and I longed to put off the evil day, for the suffering made me dread the cold forceps; in fact, the dentist kindly warmed them, that their touch might not be worse than the extraction. I finally fell into Dr. E. A. Stebbin's chair, under his hands. The pyorrhœa is gone, through his injection of bichloride of mercury solution into the pockets formed, and by bi-weekly cleansing with the same. The sensitive condition he has largely removed by the application of nitrate of silver. I now eat anything, and can drink cold water without the pleasure of life being destroyed by the acute suffering.

Very truly,

"W. H. ASHLEY."

This patient was treated in the summer or early fall of 1889. The teeth that were loose are quite firm; the gum is in good condition; there are but *very* few sensitive places on the cementum. After treating for some time with bichloride of mercury (1 to 1000 parts) without satisfactory results, I applied the salts of nitrate of silver to all exposed surfaces of the cementum. The effect was very pleasing to both of us, as his communication indicates. Since then it has been necessary to retouch some places where it has worn off. This patient would have been here to-day if he could have left his family.

CASE IV.—A man about seventy years old. Teeth loose, gums receded, considerable pyorrhœa, tartar quickly redepositing after having been removed. After cleaning the teeth thoroughly, in January, 1888, I applied the salts freely to all exposed portions of the cementum. In a few days there was a very marked improvement of the gum. Since that time the teeth have been much more firm, the gums continue in good condition, and the deposit of calculus is *very* much less. I invited this patient to be present, but, being a farmer, he did not like to leave home.

CASE V.—In April, 1886, I treated four approximal cavities in the inferior incisors of a young lady. In the fall of 1888, on examination, I found them perfectly secure, and did not disturb them. This spring (so she writes me) she had some filling done by a dentist in Connecticut, who told her that the lower incisor ought to be filled. She endeavored to explain to him that they had been treated, by some means, to arrest the decay, but could not make him take in the situation, and so he filled the cavities, saying that they looked as if they had been filled with amalgam, and that it was all, or nearly all, out. She is confident that they had not decayed since my treatment.

To submit this remedy to a severe test, in February, 1888, I invited the public primary school-children to come to my office to have their decayed teeth treated. Thirty-five of them came. I simply treated them without regard to size of cavities, or dead or live pulps,—not being particular even about removing debris from the cavities.

In March, 1889, I called them again for examination and further treatment, if necessary. Not all of them returned. On account of sickness in my family, I did not invite them in 1890.

Within the last few weeks I have called and examined as many as I could get of them. I kept a record of each cavity treated, and will give a summary of results.

I requested each one to let me have the teeth which had been treated whenever they should come out (most of them being temporary teeth), but very few recollected my request. Therefore the specimens are no so numerous as I hoped they would be.

At the examination in 1889 I found not a few good-sized cavities where there was no decay in 1888, and the cavities that were treated in 1888, in the same mouths, were as good as when

treated. In that case there was no decay on the labial surface, or where the large approximal cavity is, when the small approximal cavity on the other side of the tooth was treated. I have seen many such cases. Of course many of the teeth treated are gone and their places filled by permanent ones.

These experiments give the following results: Sixty-four cavities, after a little more than one year, show thirty-seven to be successful, fourteen partially successful, thirteen unsuccessful. Twenty-seven cavities, after more than two years, show ten to be successful, five partially successful, twelve unsuccessful. One hundred and forty-two cavities, after more than three years, show eighty-seven to be successful, thirty-three to be partially successful, twenty-two unsuccessful.

"Successful" are those that seem to have been kept from further decay. "Partially successful" are those where decay has begun around the original cavity, or decay approached from another place in the tooth,—*e. g.*, where a cavity had been treated in the coronal surface and decay had reached it from an approximal surface. "Unsuccessful" means where all traces of the silver have disappeared.

Many of the unsuccessful cases have been in mouths of patients of delicate constitution,—just the types of those that must visit the dentist *very often* to have teeth filled.

MANNER OF APPLICATION.

Make, of hard wood, fine, slender points that will enter very small cavities.

Put these points into handles on different angles suitable to reach all portions of the teeth (two points, one on an acute and one on obtuse angle, will be sufficient.)

Pulverize the crystals (owing to impurities in the common lunar caustic sticks, it is much preferable to use the crystals.)

The salts are dissolved in an equal amount of water, therefore there should be but little moisture in the cavity, or on the surface to be treated.

Moisten the wood-point a very little, so the powder will stick to it, and then take up on it an amount about the size of the head of a common pin, or more, according to the size of the cavity or surface, and apply to every part of the diseased portion. Apply enough salts and moisture to be sure the whole surface is touched. The salts will take effect in a minute or so.

Waste amalgam scraps rubbed over the treated surface, or cavity, will take up the liberated nitric acid and turn the decay dark instantly. (Since writing this paper I have used silver filings.)

I have not sufficient data to determine whether the application of the amalgam is beneficial or not, but theoretically I think it is.

Silver, instead of wood, points may be used.

Of course the mouth of the patient should be protected during the operation.

Any slight touch to the tongue or other parts of the mouth will do no harm. I never heard a complaint of bad after-results. Some dislike the taste.

Use colored napkins so the stains will not show.

Do not allow the patient to wipe the mouth immediately with a handkerchief for fear of getting it stained.

After the salts have taken effect, and you are through with the treatment, at once inject a copious amount of water to carry away the surplus; also allow the patient to rinse the mouth well.

The *manner* of protecting the patient's mouth from being touched with the salts can be determined readily by each operator. Caution and experience will enable any one to protect the patient's mouth and his own fingers.

SOME POINTS.

Nitrate of silver forms with albumen and fibrin definite compounds, that are insoluble except with a few substances.

It is superficial in its action.

With the phosphates it forms nitrate of lime and phosphate of silver.

With the carbonates it forms carbonate of silver and nitrate of lime.

Superficial decay in labial and buccal surfaces show most favorable results.

Small cavities are more favorable than large ones.

If decay has reached the pulp it is not safe to apply the silver.

In my experiments thus far I have not removed any decay before applying the salts.

Where the gum has receded, and the exposed cementum is

sensitive, the effect is very beneficial. In such cases it seems to stimulate the gum to more healthy action.

The liberated nitric acid should be removed.

When asked by patients what the treatment does, I often tell them it kills, embalms, and buries the microbes right in the place where it finds them.

The following patients will now be presented :

CASE I.—Girl. The little pits in buccal surfaces of second lower temporary molars were treated in March, 1886. The apex cavities in upper temporary molars treated in September, 1890. None of these cavities seem to have decayed since treatment.

CASE II.—Boy. The buccal surfaces of temporary molars were treated March, 1886, and have not decayed since. The apices in lower temporary molars were treated in June, 1887, and, having begun to decay again, were re-treated in November, 1889, since which time they seem to have kept quite well.

CASE III.—Girl. This patient had some cavities treated in 1888 and 1889, which you will observe are in a good state of preservation; while surfaces that appeared sound when the others were treated have large cavities now.

CASE IV.—Girl. This patient had several cavities treated in 1888. A year later nearly all traces of the silver had disappeared, and decay was active. They were then re-treated, and also some new cavities. Two years later all traces of the treatment had disappeared. Please observe that this girl is very nervous and of slight figure,—just the type of patients that often return to us for filling and refilling.

CASE V.—Man. This patient had six small cavities treated in apex surfaces of lower incisors in January, 1886, and have not been touched since. Please observe that the characteristic results of the treatment are perfect, and the decay has been entirely arrested.

CASE VI.—Young lady. In 1888, when fourteen years old, she had nineteen cavities treated in the upper teeth,—most of them very large,—some adjoining fillings. Her health and nervous conditions were such that she could not have fillings put in, and must have relief in some way or lose her teeth. Present condition: first molars decayed all away. Three cavities that were treated have since been filled. The remaining cavities have the characteristics of the treatment, and seem not to be decaying.

SOFT GOLD FOIL AS A FILLING MATERIAL.*

BY DR. C. H. GERRISH, EXETER, N. H.

I SHOULD have made my subject read non-cohesive, but use the term soft foil because when I began practice cohesive foil was hardly known. Probably most, if not all, of you are as familiar with the manufacture of gold foil as myself, but would like to ask a question or two which may come up for discussion later on.

Given an ingot of pure gold, from this same product is made cohesive, semi-cohesive and non-cohesive, or soft foil as I term it. How are these different results obtained? and how can soft foil be made less cohesive? All of you are well knowing of the fact that cohesive foil loses its welding properties if long exposed, by the occlusion of gases and other impurities. Heat expels them and restores the original properties of the foil, but what treatment shall we subject soft foil to increase its non-cohesiveness? I am anxious to know something about this problem.

But to my subject. There are teeth that cannot be saved by filling; you have met with them and so have I. Whatever material is used you will wish your choice had been different, but granted that the quality of the teeth is such that filling will preserve them, one has to choose from the many materials. In the order of merit I consider gutta-percha or Hill's stopping as the very best; next comes tin foil, then soft gold, and last in the list cohesive gold foil, and the many preparations of gold which require welding in their manipulations, while the plastic fillings, such as the oxychlorides and phosphates are uneven or uncertain in their results, yet nevertheless indispensable, while the amalgams come in to cover for us a multitude of sins, tiding over many a troubled sea, and saving more teeth than any *one* of the above-mentioned materials, and possibly more than *all* of them put together.

For the present would ask your attention to some advantages that soft gold possesses over cohesive for permanent fillings—Hill's stopping and tin foil responding too quickly to the wear and tear of mastication. It is a better stopping because it is a

* Read before the New Hampshire Dental Society, Manchester, October, 1891.

softer one, or more plastic. Why does the farmer plug the tap-hole of his cider barrel with a spile made of pine rather than some hard wood? Simply because he loses less cider, there being no leakage; for the same reason the boat builder stops up the holes made in his planks by the withdrawing of nails or screws with some soft wood. The plug must be softer than the material into which it is driven. When you put a soft foil filling into a tooth you have the same conditions present. You will agree with me that it is not the most solid filling that preserves the teeth, but rather the one that is the best adapted to the inequalities of the cavity, especially the marginal walls; the one which excludes air, moisture, and bugs, but sufficiently hard to withstand the action of mastication. In all these requirements soft gold stands foremost. You cannot make as hard a filling as with the cohesive, though it will be dense. It is like putty, though you work it ever so long; when you get through with your labors it is putty still, you have not changed the character of the material. Again, the arrangement of the cylinders in a soft filling is more conducive to a perfect stop.

Will you bear with me while I describe in brief my method of preparing the foil and working the same. I use both Nos. 3 or 4, nothing heavier. Take a sheet and fold the edges together, once, twice, thrice, loosely making a ribbon of eight thicknesses of foil about $\frac{1}{2}$ -inch wide, then roll or twist into a coil or rope, being careful to keep the surface of the foil smooth; now with the scissors cut the same into pieces just long enough to suit the cavity, by that I mean that one end of the coil shall touch the bottom, the other projecting just beyond the orifice; you grasp a piece with your tweezers or pliers inserting into one corner or angle of the cavity, *cut end down*, so the coil shall stand on end, condensing toward the distant wall; another is placed alongside until you reach the other angle. You have now reduced the size of the cavity, continue so to do until your last piece is in place. Up to this time you have used the side of your plugger almost entirely, now with the point condense the surplus gold projecting above the tooth, keeping the same well over the cavity; this is important. Now you hunt for the weak places in the filling; send the instrument well to the bottom of the cavity, using lateral wedging pressure; fill up this pit and look for another, if possible make these pits a little way from the enamel or walls, so

as to not mar or grind the tooth. These *extra pliers* are the key-stones to the arch. After this is gone through with to your satisfaction, take your burnisher and condense; and just here, gentlemen, are the saving qualities of soft foil seen—your surplus gold in a great measure disappears. What became of it? Every piece of gold presents its edge or end to the action of the burnisher. Shall I liken the filling to a bunch of asparagus standing on end? and that instrument, the burnisher, has forced, swayed, moulded or moved the mass in the same manner, but to a less degree than the warm burnisher does your gutta-percha filling, bulging the gold outward towards the walls of the cavity, filling up every irregularity and secures for you a perfect stop.

Now for a moment, contrast the effect of this instrument upon a cohesive filling, your last layer of foil has been welded (the bunch of asparagus is not end up now), the marks of the plugger still visible, these you can burnish out after a fashion; but how much impression can you make upon the preceding layer of foil? how about the first ones put in during the early stages of the work? but you say that the plug was made solid as you went along, and it is fortunate that it was, for all that you can do after the cavity is entirely filled.

Again, consider for a moment the conditions existing in the early days: no engines, mallets, rubber-dam, hardly any serrations to the points of the pluggers; subject cohesive foil to the same test and compare results in ten or twenty years. How many of these old fillings have you condemned? Cite Miss Elliott's case, Dr. West. I mention this only to emphasize the saving qualities of the material itself. Again, soft foil can be used with a minimum loss of tooth substance, especially in approximal cavities of the incisors.

I believe in a free use of files and chisels, soft foil demands it, but the manner of working the same by wedging enables you to fill without cutting a direct opening to the cavity; then you may maul and abuse the soft foil yet hardly change its character; but not so with cohesive, it responds so quickly and resents any abuse. Virtue goes out of it at the first and the conditions require you to have a generous opening or channel, and after that is made from the outside and the result, while it caters to the vanity of a few patients and fills the heart of the operator with pride, is nevertheless poor taste, and falls short of true art,

which is to conceal our work and reserve our jewelry for artificial teeth.

I do not think the art of filling teeth with soft foil an easy one to attain for it requires much time and practice and the results are not so pleasing to the eye; in appearance they do not compare with cohesive work, but they have one strong virtue, they are honest, as the work of Drs. Pray and Johnson done thirty, yes, forty years ago show.

Finally, do not conclude from what has been said, that I am a crank on soft foil. I have a rare chance at home to observe the work of dentists from all over the country and other lands as well and the best operators at that, and I have reached this conclusion that the man is greater than his school or methods. I ask of you not to let go of all the ancient landmarks, instruct your students in the art of making soft foil fillings, there is merit in them, and they are to dentistry what bread (I mean graham) is among our food supplies, the staff of life. One suggestion as to keeping a record of clinical work at annual meetings, and apology for length of article.

OUR DEFICIENCIES.*

BY GEO. A. BOWERS, D.D.S., NASHUA, N. H.

SOME three weeks ago I received an invitation from our secretary to either clinic or read a paper. I replied to his request by saying that I would read a paper without any thought at the time as to what I should write upon. However, in the interim I have jotted down some ideas that have come to me, and for the want of a better subject, have entitled this paper "Our Deficiencies." But I guess it will partake more of the nature of the minister's sermon that commenced and ended with the text, while the body of the discourse was of a desultory character.

It is exceedingly difficult at the present time, unless your mind glows fervently with the heat of some special branch of study to which you are devoting your whole attention and energy, to say anything intrinsically new and actually impossible not to plagiarize or intrench somewhat on ideas unfolded by others. However, I trust I may advance some pertinent thoughts that will help to lift us out of the ruts of the conventionalities.

* Read before the New Hampshire Dental Society, Manchester, October, 1891.

We meet here to-night in the relation of pupils and instructors. Year after year this society has convened for the purpose of enhancing both, practically and theoretically, the knowledge of dentistry throughout the State, creating mutual fellowship among its members, and in every way endeavoring to enrich, ennoble, and elevate the profession. But without any wish to censure, for I have been one of the multifarious number, let me ask if not in the majority of these meetings, the New Hampshire dentists have not come under the head of pupils? I do not wish in any way to belittle the efforts of the few who have boldly taken the helm and guided us into the present harbor of success, but I *do wish* to stir up and awake enthusiasm in those dormant and phlegmatic members who attend our conventions either for a short outing from the Ixion wheel of business or to absorb the products of the meeting rather than ever advance any ideas of their own. We have a large diversity of talent in our society, and though they may not all be rapid gold builders or superior bridge-workers, have in the quiet seclusion of their own offices performed many creditable and original operations that would be valuable to us all. Being in the office of a friend this last spring a few moments I learned two valuable things, trivialities to him doubtless, but to me, however, they have been of much practical importance. One was a very simple method of obviating the use of the ligature in the application of the rubber-dam by merely folding under the edge of the aperture when applied. Of course this is not always best, but in a majority of cases it can be successfully accomplished for the exclusion of moisture. The other a principle in the preparation of a cavity that radically changed the method I had been employing since entering the dental profession. Now I have no doubt but that every man in this convention could bring forward every year some new and ingenious device to show his co-workers.

At my home last Sunday was dedicatory to young men, and every minister preached a sermon on the relation and stand to be taken by them in regard to the issues of the day. Now to-night let every man and every young man in particular feel the responsibility and success of his profession to a certain extent resting on his shoulders. With all due deference to seniority represented here and away from here, I hold to this doctrine that youth deems truth and age a paradox, namely, that in science the

young men are the practical elders inasmuch as they are schooled in the latest experiences science has gathered up while their seniors are cramped by the old dogmas they were schooled to believe when the world was some decades younger. Then it is the young man I say in every phase of life, in every environment, professional, political and otherwise, that must take up the plough and clear the stumpy, brambly truths of science from our paths.

Youth is synonymous of mental vigor and physical vitality, and there is no plausible reason if we take hold each and every one with gladitorial strength and perseverance why we should not with our carefully wrought theses and clinical demonstrations, place our profession pre-eminently before the public. But this "consummation devoutly to be wished," would be not only purely visionary and imaginative, but practically impossible if we did not clarify our profession of its base charlatans, who sidetrack their conscience and practice their nefarious empiricism on an uneducated and credulous public. I cannot speak too strongly here for it is within only a few days that I had my attention called to an advised most atrocious mutilation. A beautiful young lady in one of thriving New Hampshire towns near, about a year ago consulted the family dentist in regard to her teeth, and he advocated wholesale extraction. Recently, while paying a visit to some friend, she called at our office, but expecting, as she afterwards said, that we would advise the same treatment. Upon careful examination three cavities medium in size presented, one in the central incisor, and two in the bicuspid. What kind of advise was this, gentlemen? Yet we have dozens rather than one displaying the same deplorable ignorance. Now the quicker we relegate to Stygian darkness these wholesale iconoclasts the sooner will our profession be recognized as an indispensable benefit to suffering humanity. It is a crime to have such self-styled dentists in our midst, and they should be set up in the windows of public scorn and labelled under their rightful cognomen, "Wholesale tooth carpenters." The prosthetic field is necessarily large enough without encroaching on the operative and despoiling the beautiful endowment of God's handiwork. I have in mind, too, a dentist who utterly ignores such a thing as a nerve, but considers that little hole in the center of the tooth a nice retaining pit for a gold filling, and I have seen them anchored there too. Consign these also to the shades of Acheron. Such

so-called dentists could not practice if it were not for the little capsicum plaster, and I presume you will find this their main stock in trade. But now after a lapse of about two years we have started once more on the right track, and I trust our present Board of Registration will prevent all inefficient aspirants from entering our profession. What we want are consciencious and competent dentists, and also an educated class of patients. The old way of giving oral instruction in the office is becoming rather tedious and too much of a tax upon our time in these modern five-and-ten-dollar-per-hour-days. We want some device to bring about this end, and let me suggest an idea, a feasible one I think, and Utopian in its results; some manual of dentistry to facilitate the public dissemination of the salient points to be regarded by all. Let this society appoint a committee to edit and publish such a book. For this purpose let every member of this society contribute a liberal sum toward defraying the expenses of such a work. Have thousands printed and distributed among dentists and let them give them to their patients, and then instead of hearing the common remark, "Doctor so and so broke my jaw-bone in extracting a tooth, and Mrs. Blank had double teeth all around," and similar egregious mistakes, we will have a more enlightened class of patients presenting themselves for our kindly treatment. Our deficiencies are many. We are not paragons of excellence. And unfortunately the larger number to whom this paper applies, are not enrolled within our fold. Let us all listen to the prompting of conscience and subvert that subtle insinuating factor, temptation, from entering into our manipulations.

Hasten slowly. Do your work carefully and thoroughly. Never let the lapse of time interfere, but have before your eyes the Latin proverb, "The end crowns the work." A fellow-dentist told me a short time ago that he spent a whole day in perfecting a little appliance that was practically all right in the first place. Hang-on-ativeness and dogged perseverance wins. Thrones and bread are won from the aid of others, but fame can only be gained by your own efforts. Do not allow the introduction into your thoughts of the ceremonious fee. This, I acknowledge, is an indispensable consideration, but so far as influencing the character of your work, ignore it. Let your mind look to the garden land of humanity rather than the market place of money. So, fellow-laborers, as we are led to discover our individual defi-

ciencies and foibles, let us remember that as a whole, like the frailest link of a chain, we are no stronger than at our weakest point, and thus the goal of our ambition may be reached by striving to emulate the most efficient and skillful of our profession. Instead of the oft-repeated inquiry, "Where can a good dentist be found?" the standard will be so high that all the need will be to know where *any* dentist can be secured.

ALL SORTS.

FOR MENDING A PLASTER CAST mix scraped celluloid chips with chloroform.—E. N. NORTH, *Items*.

"IS DENTISTRY A DANGEROUS PROFESSION?" Well, that depends. The other day we saw the tracks of a "painless" scouge, and he had certainly made it extremely dangerous for the party at "the objective end of the forceps."—*West. Dent. Jour.*

OIL OF CASSIA is becoming very popular in dental practice. As an antiseptic it is effective and pleasant, and it is especially suitable for washing instruments. Make the solution by dropping oil of cassia into water—all it will absorb.—*West. D. Jour.*

PYOCTANIN.—In speaking of this remedy Dr. Truman says he does not regard it of any more value than the ordinary derivatives from coal tar, as naphthaline or hydronaphthol. All of the agents from coal tar are valuable and are more so in his opinion than most of the other germicides in use.

TO CLEAN CORUNDUM WHEELS.—Take one-third chloroform and two-thirds alcohol. The chloroform dissolves the wax and oil that accidentally gets on the stone; the alcohol removes the shellac, and leaves the corundum free to cut as when the stone was new.—DR. BEACOCK, *Dom. Dent. Jour.*

METAL FOR CASTING LOWER PLATES.—Take one ounce of bismuth and fifteen ounces of tin; melt and stir till thoroughly mixed, run into ingots for future use. Keeps its color well, and vulcanizes with rubber attachments nicely; can be improved by adding a little silver if desired.—DR. BEACOCK, *Dom. Jour.*

TOOTH SUPPORT.—Dr. Gilmer says that the best plan of supporting a tooth about to be drilled into, in a case of acute pericementitis, is to mold ordinary modelling compound around it and the adjacent teeth, after adjusting the rubber-dam. This will prevent pressure against the inflamed apical tissues.—*Review*.

GUTTA-PERCHA is an admirable root filling, but it must not be forced through the apical foramen. Do not believe it when you are told that it will not prove an irritant, for recent experience has taught us that sometimes the irritation from a very small amount passed through the apex will result disastrously.—*West. Dent. Jour.*

BOILING WATER FOR ABSCESS.—In the treatment of alveolar abscesses, experience has taught me that by injecting pure boiling water through the suppurative tract, in the treatment of any of its varieties, aided by the mechanical effect produced by the force of the pure boiling water ejected from the syringe, has proven infinitely more important than any of the chemical solutions I had formerly used.—W. T. McLEAN, *Items*.

WAX SHEETS.—The following method of making sheet-wax, discount glass plates, soap-suds, mercurialized tin-plates, etc. Use a straight-sided, round, porous battery-cell, filled with cold water for the dipping mold. It is necessary to mark the wax vertically on opposite sides of the cell quickly after dipping to prevent the sheet cracking from shrinkage. The sheets must be flattened out before they become brittle by cooling.—C. D. CHENEY, *Items*.

DON'T WEAR PLATES AT NIGHT.—We cannot too much insist on the need of impressing on patients the fact that dentures should *not* be worn at night. First, on the ground of cleanliness. Second, to allow the mucous surfaces a period of rest wherein to recover their natural tone. We give it as our opinion, that if these details are carefully carried out, the cases in which irritation will follow the use of rubber plates, will be very very few.—*From Ed. B. J. D. Sci.*

MORSAL FOR BITING.—On account of the imperfective nomenclature to indicate the masticating or cutting surfaces of the teeth, Dr. Kirk, of the *Cosmos*, suggests that the word morsal be

used to indicate such surfaces. The term morsal cavities, morsal fillings, etc., would mean specifically cavities, fillings or positions upon the grinding or masticating surfaces of molars and bicuspids, the cutting edges of incisors, or upon the apices of the cuspid crowns.—Ed. *Cosmos*.

GUTTA-PERCHA AND TIN COMBINATION.—For cavities where gutta-percha is indicated Dr. J. E. Line advocates the use of this combination as a more serviceable filling results. Tin above and below thirty-two gauge is used by placing the tin on the gutta-percha and rolling into a cylindrical form; cylinders are cut the proper height from this and the rolls placed on end in crown cavities as it better resists the wear from mastication. To finish use a corundum point and water for grinding surfaces and a sickle scaler, coarsely sharpened on a corundum slab, for proximal.—*Abstract Cosmos*.

TO REDUCE INFLAMMATION OF THE PULP.—When pulps are inflamed, the inflammation should first be reduced before an application is made to destroy its life. To reduce this inflammation, I have found nothing better than bicarbonate of soda applied to the cavity on a loose pledget of cotton and covered with sandarac, and the surrounding parts saturated with chloric ether. This application may be left in place from half an hour to a day according to the extent of the inflammation. After this treatment the pulp is less likely to give pain in applying arsenic.—Dr. WILLIAMS, *Inter*.

A NEW TIN ALLOY WHICH CLINGS TO GLASS AND METALS WITH GREAT TENACITY.—An alloy of 95 parts of tin and 5 parts of copper will connect metals with glass. The alloy is prepared by pouring the copper into the molten tin, stirring with a wooden mixer, and afterward remelting. It adheres strongly to clean glass surfaces, and has nearly the same rate of expansion as glass. By adding from $\frac{1}{2}$ to 1 per cent. of lead or zinc the alloy may be rendered softer, or harder, or more or less easily fusible, as required. It may also be used for coating metals, imparting to them a silvery appearance.—*Phar. Record*.

MICROCIDIN.—An antiseptic (microcidin) which has quite recently been introduced is found by Dr. Berlioz, of Grenoble, to

consist of naphthol and soda, and one part of microcidin is found to be soluble in three parts of water. It possesses very feeble toxicity, is caustic, odorless and tasteless. When applied to wounds is unirritating, and given internally reduces fever rapidly, and being excreted by the urine renders it aseptic. It is usually used as an aqueous solution in the strength of either 5 to 1,000 as a strong solution, or 3 to 1,000. One distinct advantage claimed is that it does not corrode instruments and dressing materials.

COPPER USED IN THE MOUTH.—The question of copper used in the mouth is being agitated in this section. Copper wire for supporting loose teeth either for temporary use, or more of permanency, also for what might be termed supports on the palatal and lingual surfaces of teeth, in connection with wires. Also for a denture foundation, and also for crowns. We met a dentist that does a large crown and bridge practice to-day; he remarked that he had placed a copper crown in the mouth within a week. Our first use of copper wire for supporting loose teeth was suggested by Dr. Atkinson about two years since. We have found it more satisfactory than gold or platinum. It is much tougher and more ductile. It is claimed by some, that there is a therapeutic effect resulting from the contact of the wire and moisture, producing a sulphate of copper; on this theory the thought is that under some conditions of the mucous membrane it may prove favorable as a base plate. So far as our experience and observation goes nothing objectionable has appeared.—*N. Y. cor. D. Review.*

GOOD ARTICULATION NECESSARY.—After the bridge or crown is completed and fitted in the mouth, the articulation must be corrected. A great many bridges, and a great many plates as well, are placed in the mouth which are really of no practical use, owing to the malarticulation. It will be found in most cases where teeth have been out for some time that those in the opposite jaw have elongated, and have grown so far out that they may touch the gums where the teeth are lost. In such mouths it is impossible to do anything for the patient without first cutting these teeth to their proper level. This is usually a very painful operation for the patient to undergo, and some may

object to having it done, but to secure good results and do your patients the greatest possible service it is absolutely necessary to grind them away until you can secure a normal articulation, and the patient will have to bear it. I have never yet had a patient who would not allow me to do what cutting I thought necessary. —DR. PESSO, *Inter.*

TO PREVENT SPLASHING.—I have invented a very simple and effective device and which is far better than any sponge or brush for wetting lathe corundum wheels. A little tongue of thick harness leather is placed above the wheel so that it bends over and touches it a little in advance of its diameter. The water supply drops on the upper surface of the leather and is conducted to the edge of the wheel. The piece of leather has the further advantage that the friction against the wheel is noiseless. It will be found that clean water dropped liberally upon the wheel enables the workmen to cut porcelain much more quickly than water that is full of grindings. The water drip is received on a leaden surface at a convenient distance beneath the wheel which slopes to one corner through which the waste water runs. This allows the particles of gold to deposit to a considerable extent on the lead pan without running off with the free water, and the rich gold grindings can be removed either day by day, or week by week, and put into the receptacle for the sweep or other waste products of precious metals.—DR. PEARSALL, *Dent. Record.*

NEW THINGS.—President Seabury said he had a syringe which he valued very highly. The barrel was made of glass, with a platinum point drawn out very fine, making it very serviceable for injecting fluids into root-canals. It also had the advantage that when it became clogged the point could be put in the flame of a lamp and the matter burned out without damaging the point.

Dr. Adams showed an appliance for holding the rubber-dam in place. It consisted of a piece of piano-wire, three and a half inches long, bent to about a quarter circle, with a small knob at each end, and a loop in the middle. It is applied after the dam is in place, the latter being stretched over the ends and over the middle loop, which draws it away from the mouth in three directions, producing very much the same effect as the depressed dam.

Dr. Meriam also presented a syringe which he had impro-

vised by using an ordinary hard-rubber syringe and inserting a long piece of platinum and iridium tubing in place of the usual point. It had served admirably in treating a fistulous tract.—*Amer. Academy Dental Science report, Inter.*

TO MAKE NICE WAX SHEETS, I have used the following plan for the last fifteen years: After the wax is properly cleaned, get four pieces of glass cut the width you want to have your sheets, and about ten inches long. Any deep vessel, such as a dinner pail, or an old oyster can will serve to melt the wax. Put the pieces of glass in a pail of cold water, when the wax is melted, take two pieces of the glass, one in each hand, and dip alternately, one cooling while you dip the other; about three or four dips is sufficient, then drop into the cold water. Let these two remain till you dip the other two in the same manner. By trimming the edges off the glass with a knife the sheets will drop off themselves. If the wax is kept too hot the sheets will be too thin, if too cold they will be lumpy and thick; near the setting or cooling point is the proper temperature. A tablespoonful of Venice turpentine to three or four pounds of wax will toughen it. This should be evaporated to dryness like resin. It can sometimes be obtained in drug stores in this form. It will answer the purpose even if used thin, but the thicker it is the tougher will be the wax sheets.—DR. BEACOCK, *Dom. Dent. Jour.*

METHOD OF MAKING HALF CAPS.—For the benefit of any one who may not have used the half caps I will explain how they are made. The impression should be taken after the tooth has been prepared. After running the model and having it thoroughly dried, cut the plaster away from around the neck of the tooth to nearly one-sixteenth of an inch below the gum line. Then give it several coats of thin sandarach varnish, and after this has dried the model will be hard, and you can proceed to make the cap. First make the band the full height of the tooth, and contour its edges so that it will touch the plaster all around. Cut it out front and back so as to leave these surfaces of the tooth exposed, letting the edges of the band at the inner side extend a little beyond where the tooth has been cut away. Next take a very thin piece of pure gold platinum of the right width, let it pass over the basilar ridge inside the band. Burnish it carefully into the groove and up the back of the tooth, letting

it extend over the cutting edge. Then cutting it well with hard wax, remove, invest in sand and plaster, and restore the contour with 18- or 20-carat solder. With a half cap made in this way there is very little strain on the band in front, and it makes no difference how much pressure is brought to bear, it cannot be forced back over the basilar ridge, and the pressure is directly downward or upward, and nearly over the centre of the tooth.

In the preparation of the bicuspid the same principle will apply.—Dr. PESSO, *Inter*.

PENTAL, THE NEW ANÆSTHETIC.—Pental is the new name applied by Prof. J. V. Mering to *Trimethylethylen*, a product of amelenhydrate heated with acids, and recommended by the distinguished clinician as safe and effective anæsthetic. Pental is described, chemically, physically, and as to its possible utility, in the *Pharmac. Zeitung*, Oct. 7, 1891, and in the *Pharmac. Central-halle*, October 15, 1891; both journals conservatively withhold endorsement of the product, basing apparent skepticism on the fact that chemically the body has long been known, and that analagous amylens (for instance, *iso-amylen*) were employed as anæsthetics about forty years ago, but quickly discarded because found to be unsatisfactory and offensive, owing to their unpleasant odor.

So was cocain well-known; yet, who will deny that the discovery or its wonderful anæsthetic properties was a revelation to the medical world, and worked a revolution in treatment and which will forever distinguish the name of the discoverer, Dr. Koller, whose publication in August, 1884, was responsible for the present universal application of cocaine.

While Pental will not probably excite the same degree of interest as did cocaine, it is safe to assume—reckoning on the high character and recognized conservative authority of Prof. v. Mering—that this product will find valuable application. From reports already furnished notably that of Prof. Hollaender, of Halle a. S., which was read before the Dental Section at the Convention of German Naturalists and Physicians, at Halle, this year, the new anæsthetic is shown to be suitable and efficient for minor surgical operations, and particularly in dentistry, for tooth extraction, etc.

Pental (C_5H_{10}) occurs as a colorless liquid, of low specific

gravity; its boiling point is $38^{\circ}\text{C}.$; it burns with an illuminating flame, and is readily inhaled without affecting the membranes of throat or passages. It is insoluble in water, but miscible in all proportions with alcohol, chloroform or ether, and being inflammable like the latter, must be protected from possible ignition. It is exceedingly volatile, but does not decompose by exposure to air or light.

The inhalations are simply conducted, 10 to 25 cc. of the fluid sufficing, and narcosis ensues in from 50 to 90 seconds (Dr. Hollaender), without influence on the respiration or the action of the heart, and causing no unpleasant side or after effects. From a careful consideration of Dr. Hollaender's report, a most favorable impression of Pental is gathered, and we hope to supplement and confirm this by early additional original reports.—*Notes on New Remedies.*

PORCELAIN GUM FACING ON GOLD PLATE.—The plate is struck in the ordinary way, a gold wire, pin thickness, is soldered along the extreme edge overlapping gum on the labial side. A piece of platinum foil is either struck or burnished on the alveolar border, carrying it down to the wire and slightly upwards so as to form a reliable edge for the porcelain. This second plate is slightly secured to the base plate so as to admit of its ready removal.

The teeth are mounted in ordinary manner, securing them to the platinum plate on the labial side with wax. When their adjustment is complete, an iron wire is carried round their face from molar to molar to obviate any displacement.

Before removing the teeth in conjunction with the platinum plate from the base, it is advantageous to have a lop bite to facilitate replacing of the completed section.

The base plate is marked for the retaining pins, and the case is ready for investing.

Investing.—The teeth are placed crown downwards in the material, leaving a quarter of an inch of substance underneath. The pins of the teeth and the plate being securely fixed in the investment. When set, the wax is removed and the case thoroughly dried. When this is completed it is in a condition to receive the body.

Body.—This is mixed with distilled water to the consistency

of a thick paste, which is applied to the platinum face and modelled as nearly as possible to what is desired when finished.

Firing.—The case is then placed in the front of the muffle, and is gradually carried to the posterior end.

When satisfied that the moisture is thoroughly gone, the door is placed on the furnace. In five minutes thereafter the block will be sufficiently fired.

When satisfied that the firing is perfect, the door is removed, which immediately reduces the temperature without chilling. The case is by degrees brought to the front of the muffle and left to cool.

When cold, any defects in the body due to shrinkage, are filled up, and the case replaced in the furnace, using the same precautions as before with regard to the drying, heating and cooling.

The body being perfect, the gum is now put on, modelling it carefully to the exigencies of the case, aided by the individual capacity of the operator. It is now ready for its final firing. Dry carefully, then submit it to a brisk heat for about six minutes, and the operation is complete. Cool the case carefully, place it in slightly warm water, and the stool will fritter away, leaving the case ready to be adjusted to the model. If the edges require trimming, do it gently to avoid fracture. Adjust the case to the bite, secure it to the plate, invest it in a flask, pack it with 1 × pink rubber, the only pressure necessary being a hot burnisher. Model as in the ordinary combination way and vulcanize. In the interval of cooking the gum, take a thin strip of gold plate, run it along the border of the gold wire, leaving a free edge of plate to burnish along the lower border of the mineral. I would also recommend all coarse polishing to be done during that time. The gum body used is Ash's which fires at a lower temperature than Allan's, and produces an excellent result. Scrupulous cleanliness should be observed throughout the entire operation.—DR. J. TURNER, *Dent. Record*.

SOCIETIES.

VERMONT STATE DENTAL SOCIETY

MEETS at Burlington, March 16, 17, 18, 1892. A good program has been prepared and a large attendance is expected. All dentists are invited to be present at the meeting.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

THE annual meeting of this society will be held at Cincinnati, O., on March 9, 10, 11, 1892. An extra effort has been made to make this the most interesting meeting yet held. The program has been carefully prepared and all who attend will be benefited. Every member of the profession is cordially invited to be present.

KANSAS STATE DENTAL ASSOCIATION.

THE twenty-first annual meeting will be held at Ft. Scott, April 26, 27, 28 and 29, 1892. All members of the profession are cordially invited.

C. E. ESTERLY, *Sec'y.*

THE POST-GRADUATE DENTAL ASSOCIATION OF THE UNITED STATES.

THE annual meeting will be held at the Leland Hotel, Chicago, April 29th and 30th, 1892. Dr. W. C. Barrett, of Buffalo, N. Y., Drs. T. W. Brophy, Louis Ottofy, and others of Chicago, will present essays or addresses. An interesting program has been arranged and a good attendance is expected. All members of the profession are invited. Graduates of recognized dental colleges may become members by paying a membership fee of \$1 and dues for one year in advance, \$1.

R. B. TULLER, *Pres't.*

L. S. TENNEY, *Sec'y,*

96 State St., Chicago.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

THE EVIL THAT MEN DO is not in it with the evil they think their neighbors do.

CHAUNCEY DEPEW says, A man who never makes mistakes never makes anything.

DEMAND AND SKILL is the true basis for the measure of our fees.—Ex. in *Dental Review.*

A COMMITTEE of the Post-Graduate Association of the U. S. is preparing a plan for a course of home reading.

REMOVAL.—The Drevet Mfg. Co. (manufacturers of Marchand's Preparations) have removed to 28 Prince Street, New York.

HER THIRD SET OF TEETH.—Mrs. Elizabeth Gray, widow of Judge Gray, of Osgood, Indiana, has a third set of teeth just erupting. She is 85 years old. —*Daily paper.*

NOTHING IN IT.—I hav finally cum to the konklushun that if I kant prove a thing without betting 5 dollars on it, the thing haz got a dredphull weak spot sumwhare.—JOSH BILLINGS.

THE DENTAL PROTECTIVE ASSOCIATION has assets amounting to \$23,000 and no debts. The figures should be \$50,000, and will be if you send in your application for membership accompanied by the \$10 fee.

A STOCKTON well-borer recently found the tooth of an animal at a depth of 1124 feet. It resembles the tooth of a monkey. Another tooth, apparently that of a herbaceous animal, was found at a depth of 900 feet.

MEMBERS of the American Dental Association must be "well up" in obituary poetry, or they went to the late meeting with vest pockets well loaded for the occasion. Vide remarks on report of committee on necrology in 1891 Transactions.

IN STOCKHOLM, SWEDEN, there is a Scholarship instituted for the purpose of rendering assistance to women, without means, who intend to study dentistry. It is known as the Free Wilhilmina Hierta's Scholarship and has just been given to Fröken Elena Levin, who has qualified at the Gothenburg College for dentistry.—*Exchange.*

DR. E. S. TALBOT, Chicago, sends us "Addresses, Papers and Discussions in the Section of Oral and Dental Surgery at the 42nd annual meeting of the American Medical Association, Washington, D. C., May, 1891." Printed at the office of the Association, Chicago. It would seem to us a good plan to have these transactions of the dental section issued annually, if they are not, and finally gathered into a bound volume.

DENTAL QUESTIONS AND ANSWERS, by Gustavus North, A. M., D. D. S. Part I, Hygiene. Part II, Dental Embryology. Part III, Dental Pathology, and Therapeutics, care of children's teeth and miscellaneous. It is a little volume of 73 pages (and 15 pages blank for memoranda) containing the outlines of about fifty lectures delivered by the author in the American College of Dental Surgery, Chicago. It will be quite useful to college students and many practitioners.

IN A RECENT DIVORCE CASE it was developed as a part of the proceedings that the husband and father, who is a dentist, had at one time operated upon the teeth of his two year-old daughter, thereby causing severe nervous prostration. Reputable dentists, however, state that the father was justified in his course, and they state that the filling of the teeth of small children is a

legitimate part of their business. A two-year-old child should not be kept in the chair more than half an hour at a time, and the filling should be some soft material easily placed.—*Daily paper.*

A FOURTEEN-POUND TOOTH.—Near Higate, about forty miles west of St. Thomas, Canada, was recently discovered the largest skeleton of an extinct animal yet found. It belonged to the order of *mastodon giganteus*, and measured twenty-two feet from end of nostrils to tip of tail. The tooth only of one of these huge monsters of prehistoric times was dug up recently at Falling Springs, near Belleville, Miss., which weighed fourteen pounds twelve ounces, and, had the skeleton been discovered, it would probably have been found to be that of an animal thirty feet long.

ESTIMATING WORK DONE BY OTHERS.—"I would suggest that it be considered unprofessional, ungentlemanly, to estimate the cost of work performed by another dentist. We are unable to tell, by looking at work, how much time or patience the work demanded. Never make it a practice to tell how wonderfully successful you are in all operations on the teeth, and how much inferior to you your neighbor is. If you are superior the public will find it out and respect you the more if you are modest and courteous in your behavior toward your fellowmen."—C. A. SOUTHWELL in *Dental Review*.

RUSSIA'S PLATINUM MINES.—Although Russia possesses almost inexhaustible mines of platinum, there are only two laboratories in the country which prepare the precious metal for commerce. The raw material is sent from the Parmian Government, where it is found, to St. Petersburg, and thence, for the most part, to England, where it is refined. During 1888 only thirty-one puds, or 1,085 pounds, were refined in Russia. The price of platinum went up between 1886 and 1890 from 3,000 to 12,000 roubles per pud, or from about 84 to 336 roubles a pound. In the sixties it was believed worthless by the gold miners in Siberia, who used it often as shot.

THE GUTTA-PERCHA TREE.—The steamer Cachar, which arrived at Marseilles recently from Tonquin, brought back M. Serullaz, who went out two years ago on a mission from the French Minister of Posts and Telegraphs in search of the *Isonandra gutta-percha* tree in Malaysia. The disappearance of this tree threatened with great embarrassment, if not with extinction, the submarine cable manufacture. But M. Serullaz has discovered large forests of these trees, and has hit upon practical ways of collecting the gum without destroying the trees, as the natives inevitably do. M. Serullaz has been allowed to transport several hundreds of the trees from ten to fifteen years old to Algiers, and their cultivation will be attempted in Guiana. M. Serullaz has left for Algiers with his cargo, which is artificially warmed on board the Cachar.

DENTAL JOURNALISM.—*The Archives of Dentistry* is missing once more.

The Dentist Himself appeared in January, 1892, and is discontinued because of the ill-health of the editor and publisher, Dr. J. Albert Kimball, New York City.

The Chicago Medico-Dental Bulletin comes (January, 1892) to fill a long felt want "in the interest of medicine, dentistry and the kindred sciences." It

is published quarterly, but "it is designed ere long to increase the frequency of publication to bi-monthly, monthly or weekly issues." It is nicely printed and has seven editors, who "do not think that either Dentistry or Pharmacy [big D and P] should aspire to become individual entities, but should take the greatest pride in regarding themselves as nothing more than important departments of medicine" [with a small m].

THE DENTIST AND THE TELEPHONE.—A well known dentist of this city is in trouble with a society lady. This lady only recently discovered that the dentist has a telephone, and since that time she has been making life miserable for him by changing her hours for work. Yesterday the dentist received the usual call, stating that the lady would not be on hand as per appointment, but wanted an hour set for this morning. "I don't want you to come again," replied the petulant dentist. "I lose too much money bothering with you. You never keep your word." About half an hour later a carriage drove up the dentist's door, and the lady alighted and paid her bill, stating at the time that the dentist had ruined her reputation by his conversation over the telephone. The dentist was a little nonplussed, but later in the day found that the lady had telephoned from a drugstore, and the druggist's office boy had acted as interpreter, and in explaining the message had told a crowd of bystanders just what the dentist had said.—*Cin. Com. Gaz.*

NEWSPAPER DOINGS IN DENTISTRY.—The students of the dental department of the Cincinnati College of Medicine and Surgery got too funny, and when the dean sat down on them they rebelled. All is now serene, however. —A Chillicothe dentist was caught in a Cincinnati assignation house with another man's wife.—A student of the Ohio Dental College, Cincinnati, crazed with liquor creates a scene with a revolver about \$2.75 lost at dice in a saloon. It wasn't his first effort in that direction.—An Akron, Ohio, dentist disappears between two days leaving a long list of angry creditors behind. —A young man and his wife, from Indiana, both studying dentistry in Cincinnati, when the husband is taken ill with brain fever and dies.—A well-known Newport, Kentucky, dentist is on his way home, at night, with his brother-in-law, when they are set upon by two roughs and the latter are theirs. The Doctor and his b. i. l. leave them lying on the pavement and continue their way home.—A Mt. Vernon, Kentucky, dentist, while hunting, during a storm sought shelter in a cave on Rockcastle River. "The discharge of his gun at a pair of glaring eyes dislodges a huge boulder and tons of sand, while countless hideous bats fall upon him, only to be driven off by the flames from his whisky-saturated coat," and he was seven hours digging his way out. Shade of Monte Christo! He isn't in it with the modern newspaper reporter.—Chicago's Prize Mean Man is said to be a dentist worth \$100,000 [Where did he get it?] whose second wife, as often happens in Chicago, is suing for a divorce. She alleges neglect, starvation and cruelty. It is said that his first wife obtained a divorce on similar grounds.—A Cincinnati dentist is being sued for divorce by his wife. Among other acts of cruelty she alleges that he inserted fillings in the teeth of their two-year old child!

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CONTRIBUTIONS.

PROPHYLAXIS.*

BY J. TAFT, D.D.S., CINCINNATI, O.

ORAL hygiene is a subject which every dentist perhaps imagines he understands quite well. It is a subject, however, that receives but little consideration in the literature of the profession or in our discussions upon dental questions, and altogether too little in the actual practice of the average dentist. It is because of these facts that I now ask your attention briefly to this subject.

The general failure to recognize the practical phase of this subject, is not because of a corresponding want of knowledge or want of ability to meet the emergencies, but it is due in a large measure to the neglect of the subject in our literature and discussions. There is very great lack of understanding and appreciation of the importance of this subject by the people generally, and so it is rare indeed to find any one with a mouth with all its parts in a perfect state of health and purity; notwithstanding

* Read before the Ohio State Dental Society, held at Columbus, December, 1891.

the fact, that upon the condition of the mouth and teeth, in a large measure, depend the comfort and welfare of the entire organism.

The processes of digestion and nutrition, in a large measure, depend upon the insalivation and thorough mastication of the food. This can only be accomplished when the masticators are in good condition, and this can only be maintained by intelligent care and attention; and the latter will only be exercised when there is a proper appreciation of the value of these organs.

Perhaps not more than one in twenty, in any ordinary community, succeeds in maintaining the mouth and teeth in a good state of health and purity. This does not occur so much from absolute ignorance as to how it can be accomplished, as from want of appreciation of the importance of the subject; for it is quite practicable, and within the reach of every one who desires to maintain these organs in the best possible state of health, comfort, and usefulness, to secure a very great improvement over the average condition as presented.

And now, are there any others to whom responsibility attaches for this state of affairs? Can it be said that physicians, who are supposed to be the conservators of the public health, are much more appreciative than the common people?

Very seldom indeed is it that physicians give instruction to those in their charge, about the health and preservation of their teeth. The truth is, that usually the chief efforts of the physician are directed to the cure of disease, rather than to its prevention; notwithstanding the latter is vastly more important than the former.

May we ask how much care is exercised in respect to this matter, by physicians, each one for himself?

The want of attention to the subject of both special and general hygiene, on the part of the medical profession, is lamentably prevalent, to it vastly more attention should be given.

What shall be said in regard to the attitude of dentists in regard to oral hygiene? Are they not relatively as much in fault in this matter, as the general physician? How seldom is it that dentists are careful to instruct, and sufficiently impress upon the minds of those they may have in charge, the importance, the benefit, and the means of maintaining a good state of health of the mouth and teeth.

Is it not true that in a large proportion of cases, and may we not say a large majority, in which the dentists are called upon for remedial and restorative treatment, that they wholly overlook prophylaxis? How often is it that the operation of filling teeth is performed in a mouth having much disease, and a large amount of debris and impurities that ought to be in the first place removed.

How often is it that the dentist simply rests satisfied with performing an operation for repair upon a defective tooth or teeth, when the first thing that should receive attention, is a restoration to health and purity of the mouth in all its particulars, and the operations upon decayed teeth for restoration, should follow.

It will readily be conceded that when a patient is placed in charge of a dentist, for the care and preservation of the teeth, it is his bounden duty to do whatever will minister to the best interest of that patient; and this applies not only in respect to restoration, repair, and remedy, but also to prevention as well; the proverb, "Prevention is better than cure" applies here with great force.

While it is true that the active and manipulative work of the dentist is, in a large measure, devoted to repair and cure, yet he has, if possible, a greater responsibility and duty in aiding and directing his patient in such a course of health and habit, as shall most certainly ward off and secure him against disease.

Is it not true that patients, many a time, are dismissed from the care of the dentist, with the mouth in such a condition with respect to impurity, that the best work possible upon the teeth in the way of filling, is of but little permanent value? Every patient before being dismissed should receive such instruction, and be so impressed with the importance of the subject, that the habit of attention to the care of the mouth should be thoroughly established, and as persistently followed as that of sleep, or partaking of food. The dentist owes it to himself and his profession, as well as to his patient, to do whatever will lead to the greatest permanency and security of his operations.

No one at this day should be permitted to engage in the practice of dentistry without thorough knowledge and the best appreciation of dental hygiene, and all that pertains to it; every dental college should make oral hygiene one of the most impor-

tant of the branches of its instruction. This subject should be more discussed in dental societies than it has been, and with a special reference to arousing attention in regard to it; this is perhaps more necessary than giving instruction as to methods of procedure; nevertheless, the latter is very important, and more should be written upon the subject.

In looking over the literature of dentistry there is but little found on this subject, a few brief articles, probably not over half a dozen will be found in our periodical literature bearing directly on this subject, and few if any of these assume to discuss the question to any good degree of thoroughness. There has been enough written to fill volumes on "The Management of Pulpless Teeth"; "Abscess Teeth"; "Supplying Artificial Substitutes," etc.; while the subject of oral hygiene has received but a word or a thought at long intervals. Our textual literature is well nigh silent on the subject of the maintenance of the mouth and teeth in a state of health; they deal almost wholly with processes of remedy, repair, and restoration. This deficiency does not occur wholly from ignorance, for nearly all dentists, and many others, know full well the ordinary results of the neglect of the teeth and mouth. Time and space forbid that we here enter into a full discussion of oral hygiene. Is it not quite as necessary that we apply the knowledge we have of this subject, as to strive for more knowledge while we are not utilizing what we have? I doubt not that three-fourths of the diseases of the mouth and teeth are preventable by a right application and exercise of the knowledge we have upon the subject of prophylaxis. There is, of course, much to be learned, and it is commendable to make all possible progress, but let us, by all means appreciate and apply the knowledge and ability we have; if we possessed more light and knowledge, and made no better use of it than of the knowledge we already have, we would be none the better, but worse.

In the further consideration of this subject, I will ask your attention to one or two offensive conditions of the teeth, with which all dentists are more or less familiar; all are familiar with the ordinary deposits and accretions that are found in the neglected mouth.

Perhaps the most simple and least excusable of these is a more or less vitiated mass of soft pasty matter, consisting of food

material, thickened mucus, and waste from the adjacent tissues. This is usually found in greatest amount at and near the necks of the teeth, and beneath the margins of the gums, and between the teeth; this material ordinarily undergoes putrefactive change quite rapidly. The character of this change, and the form which the material may assume, will be modified by the state of fluids of the mouth, by the character of the breath, and somewhat, doubtless, by the condition of the alimentary canal; the change in this material will also be influenced by "mouth breathing"; this evil habit tends to produce thickening of the mucus of the mouth by evaporation of its water; variation in thermal changes is also by this means induced; foreign matter in the form of dust organisms, and whatever may be in the air, will be taken into the mouth by the "mouth breather." All this tends to hasten change of matter that may be lodged in the mouth; this variety of accumulation may be found upon all the teeth in the mouth, perhaps in larger amount, however, upon the buccal surfaces of the molars, and the anterior surfaces of the inferior incisors, and oftentimes upon the labial surfaces of the superior incisors and cuspids, upon the latter it is usually found in its most offensive condition; upon the entire surface of any or all of the teeth this accumulation will often be found, and especially is this true of those not used in mastication. It will usually be found in its most offensive state where fresh saliva comes most in contact with it, and so, nowhere is it found more offensive than upon the labial surfaces of the superior anterior teeth. The influence of this material is injurious in several aspects or directions; it usually possesses a more or less marked offensive odor, due to its putrefaction, and this is often given to the breath; and in "mouth breathers" this offensive condition will be carried to the lungs, as well as thrown out by the breath. This offensive matter also necessarily more or less mixes with the food, and is taken into the alimentary track; this accumulation is usually more or less irritating to the margin of the gums, and to the mucous membrane.

In all cases where it exists in any considerable quantity at and beneath the margin of the gum, there will be an inflamed condition of the tissue, more or less pronounced, and of greater or less outreach according to the susceptibility of the tissues, and in many cases persistent suppuration of the margin of the gums

is the result, and sometimes disease thus induced extends into the sockets of the teeth, causing more or less pronounced disease there.

The persistent presence of this material especially upon the buccal surface of the superior molars, and upon the labial surface of the superior incisors, is a fruitful source of decay of these teeth, and especially so where there may be defective enamel, or where it passes beneath the margin of the gum and beyond the edge of the enamel; evidence of this destructive influence is shown by the fact that very rarely does decay occur upon this surface of these teeth when they have been kept wholly free from this deposit.

This accumulation is almost universally found upon the teeth of those who do not masticate as nature designed. Those who live upon pultaceous food, requiring little or no friction in the act of mastication, usually have this material in large quantities. Different kinds of food vary in their liability to undergo change; some under a given influence will decompose rapidly, others under the same influence much less rapidly.

In giving directions for the hygienic management of the mouth, the things here referred to must be taken into consideration, viz., the habit of mouth breathing has its deleterious effects upon the mouth, the teeth, the throat, etc. The patient should be made to understand the influence of a vitiated breath, and to understand that there is always more or less of mischief in connection with it that ought to be remedied. Always when an offensive breath is present, it should be a matter of earnest solicitude on the part of the patient; the condition of the alimentary canal oftentimes has much to do in vitiating the breath, and in inducing an abnormal state or condition of affairs, but a course of life should be adopted by the patient such as will change conditions for the better.

"The mouth breather" should contract the habit of keeping the mouth closed, and using the legitimate organ for respiration; the best possible condition of the general system should be maintained by a full observance of the laws of health and hygiene, to this end, good and nutritious food should be used, mastication and insalivation should be thoroughly accomplished, all the eliminating organs of the body should be maintained in a most perfect condition, each one should be so managed and treated that its peculiar work will be well accomplished. To these conditions

very little, if any attention is given by the average practitioner of dentistry. The remark was not long since made, in the hearing of the writer, by a prominent dentist, that "he did not regard it as his duty, nor the business of a dentist, to cleanse the teeth from that which the patient himself could remove." Now, while in one sense this may be true, it does betray a want of appreciation in respect to this matter; it is as important that the teeth and mouth receive attention in regard to purity and cleanliness, as that decayed teeth be filled, or that diseased gums, or alveolar abscess be treated.

A great many excuses are made for neglect in this matter, such as: "I have been sick, or not very well, and so my teeth have been neglected." Another, "I have been away from home and had not the opportunity to attend to my teeth"; "I have not the appliances or preparations for keeping my teeth in good condition"; "I did not know that there was anything objectionable or pernicious about or upon my teeth, or even in the mouth." Another says, "I have been so very busy that I had not time to give attention to this matter." How much influence any or all of these excuses ought to have, or will have with any one who fully appreciates the value or importance of a healthy mouth and good teeth, I leave you to decide.

Let us then, as we go forth in the exercise of our professional duties, use most efficiently the knowledge and resources we have. In time of peace prepare for war; in time of health build barriers against the incursion of disease, and not wait till it is upon us, and then put forth efforts in meeting it, which are in so many instances fruitless, and at best serve but a very temporary purpose.

DISCUSSION.

DR. C. P. DENNIS, Portsmouth: This subject is too important to permit to go by without some discussion, as it is one we have to deal with in our daily practice. I will undertake to say that it is much like our religious duties, there is so much difference between the profession and our conduct in the matter. It is a very important matter also because the durability of our operations in the mouth depend so largely upon the condition of the mouth and teeth and the care that is taken of them. I try to impress upon every patient who comes into my office the necessity for caring for the teeth, and when I have not got time to

talk about it, I give them printed directions. It seems to me, we cannot expect operations to be lasting unless the mouth and teeth are kept in a healthy condition. In the press of business of attending to our patients we forget these things, and as I have before said, I keep slips containing directions near by me, so that I can hand them to patients as I discharge them. Dr. Taft has covered the ground so thoroughly, that there is very little left to be said. I commend the paper, because it tells us to do our duty rather than what our duty is.

DR. W. H. WHITSLAR, Cleveland: There was a discussion at a previous session of the society on the care of the teeth during pregnancy and lactation, and it strikes me that this subject would have come under that head very nicely. The means of proper food, the proper filling of teeth and care of the mental state were touched upon in that discussion, but nothing, to my knowledge, was said in regard to the teeth from a hygienic standpoint. It has been my experience that women during the period of pregnancy and lactation have so much to do in taking care of children that their mind is constantly occupied in that direction, consequently they neglect their teeth. If they had taken care of them, provided they were of good structure, they would not have decayed. We must not at all times say that teeth decay because they lose their lime salts, or because they are not properly filled. Care of the teeth during pregnancy and lactation by the proper means, the use of the brush, etc., will prevent them from decaying in a great many instances.

DR. J. TAFT: It strikes me that this is a matter of importance both to the dentist himself and the profession, because the greater efficiency he can secure in that which he does for his patients in the way of arrest of decay of the teeth, the better will he be held in the estimation of those whom he serves. It is his duty from the standpoint of self-preservation, so far as professional reputation is concerned, and it is his duty to give such directions as will secure the most perfect results in this respect. There are various conditions in life; there is a lack of care on part of the people in regard to their teeth. Sometimes there may have been much work done in the mouth of the patient, and he has received no instruction about this care, and by and by he or she becomes negligent and an accumulation of debris is made upon the teeth and remains for an indefinite period of time.

Indeed, all of you have seen cases of the first, second and third molar, where there has been an accumulation of material upon the surface, undergoing decomposition, and you can almost predict in many instances that beneath this accumulation there is disintegration of tooth substance. If a filling has been put into that surface of the tooth you will almost instinctively come to the conclusion that the condition is faulty, and I suspect about that filling there is decay. In a great many instances it will be found that disintegration takes place there. Now then, it is important for the dentist from a professional standpoint that he should pursue that course in the way of impressing upon the mind of his patients the necessity for care in this respect for the preservation of their teeth.

Another point. Every one, who is a regular patient, should have his or her mouth examined at certain intervals, perhaps every six months on an average. Some patients ought to have their teeth examined every three months. The dentist should see that the patient is careful in this manner, if possible, and not allow him or her to lapse into careless habits; he should see that they are masticating their food well and that there are no extensive breaches made in the teeth. Other patients will go along six months without an examination of their teeth being necessary, and still others nine months, and you feel satisfied to let them go that long, knowing that they are careful in their habits. Another patient of different habits will have large decay made within a year's time. The character of the teeth, their susceptibility to disease, modify the circumstances relative to the frequency with which the teeth should be examined. The dentist who examines the teeth of regular patients should see that every filling is in good condition all the while. Fillings should be gone over and kept in good condition, for there is no reason in the world why fillings may not be impaired by use in three or four years, by abrasion or roughness produced in various ways. When we get a hole in our boot, we have it repaired; when we get a hole in our coat, we have it mended; but teeth oftentimes go along without being touched. Teeth should be examined in this respect, and we should insist upon those who hold us responsible for their teeth, that these examinations shall be made. A patient holds you responsible for what you have done. We hear it said sometimes, "Dr. So and So filled my teeth, and they are all gone

to pieces." Insist upon seeing the cases frequently and do whatever is necessary to maintain a perfect condition of the mouth. That is due to the dentist. As he builds up his reputation so he is established in the community. It is a duty we owe both to ourselves and patients.

CLINICS AND EXHIBITS AT OHIO STATE MEETING.

DR. W. S. ELLIOT, New York, demonstrated the making of glass inlays.

DR. J. R. CALLAHAN, Cincinnati, inserted a combination filling in a lower left molar.

DR. G. W. MELOTTE, of Ithaca, N. Y., demonstrated his crown- and bridge-work methods by making a lower case of two bicuspid and molars. He also demonstrated his method of welding gold instead of soldering.

DR. J. F. DOUGHERTY, Canton, O., exhibited a new electric dental engine. The motor is small in size and attached to the bracket arm of the engine. The White engine cable is used. The bracket is made of metal and is double jointed so as to swing about as desired. The engine is instantly reversible which is a valuable feature. The speed can be adjusted at will and an exceedingly high rate obtained if desired. It is the best machine of the kind we have as yet seen.

DR. L. E. CUSTER, of Dayton, O., exhibited the following new electrical appliances, of his own construction: A reversing appliance for the belt, for electric motors which do not reverse; a brake for the same. An electrical gold annealer, which consisted of a mat of platinum wire in coils, covered with a sheet of mica. The platinum is raised to any degree of heat from the 110-volt current, and controlled by a rheostat. An electric match which would light an alcohol lamp and do away with matches was made of a rubber handle and two platinum points for making and breaking the current. A method of heating water to 100° F. was shown. This consisted of a six-candle power lamp immersed in a tumbler of water. It is used as a resistance for other electrical appliances. An appliance for making copper amalgam was interposed in the current used on the motor. This furnished part of the necessary resistance.

DR. H. F. HARVEY, Cleveland, exhibited an appliance of his own invention for correctly articulating models and holding them in place. Also to be used as an articulator for crown-work and small bridges. It is constructed of brass tubing of two sizes—the larger about three-eighths of an inch diameter, and the smaller of a size to fit within it and telescope easily without loss of motion.

Place the models in proper occlusion, and measure the distance from the top of the upper model to the bottom of the lower, and make the length of the post or inside tube three-eighths of an inch less. Drill a hole and solder a pin in this post one-half inch from the end, and then solder a square piece of sheet brass (which should not be much larger than the tube) to the end nearest the pin for the base of the post.

With the edge of a thin file cut a slot in the end of the outside tube or casing one quarter of an inch long. The pin in the post should fit this slot closely to prevent any rotation of the models until separated far enough to clear the cusps of the teeth. Cut this casing one-quarter of an inch shorter than the post, and solder a cap on the end opposite.

To mount models, cut a hole the size of the casing in the center of the palatine arch on a line just posterior to the second bicuspid, and countersink from the top so that the cap of the casing will be imbedded in plaster when filled. Now place the casing in this upper model, and secure it in proper position with wax on the palatine side, and fill the countersink with plaster, being sure that this is large enough, and rough to let the plaster run freely under and around the cap and retain it. When this has set, place the post in the casing and then cut and mortise the lower model to receive the base of the post when the models are in proper occlusion. Hold them in this position, and carry plaster well around and under the base of the post, and do not disturb it until set.

The plaster for setting these tubes should be mixed *thin*, so that it will run well around and under the caps; and if the models are dry they should be soaked in water a few minutes before attempting to mount.

Should it be preferable to preserve the palatine arch free from obstruction, the tubes may be set as far back as desired by extending the caps on the tubes forward in the form of a small

articulator. In mounting in this manner the base should be set in the lower model first. This form makes a very perfect articulator for crown- or small pieces of bridge-work.

Memoranda may be made on small slips of paper and placed inside of the inner hollow post for future reference. The telescope tubing may be ordered through any hardware store.

A TOOTH LODGED IN THE LEFT LUNG FOR NEARLY THREE MONTHS.

BY DR. W. H. SPAULDING, BEDFORD, O.

ON or about Oct. 6, 1891, Mrs. A—— called on a city dentist to have the upper jaw cleared of teeth. Nitrous oxide was administered. The patient regained consciousness after five teeth had been extracted, but was held by force until the remaining few were drawn. During the operation the patient struggled considerably and breathing was labored. After the operation she returned home complaining of her heart and a smothered feeling. She was unable to lie on her left side, and about one week after the extraction she commenced coughing and raised large quantities of matter with an occasional admixture of blood with the pus. This continued for about two and a half months, the left lung paining her considerably during this time, when one day she was taken with a violent coughing spell and dislodged an upper wisdom tooth consisting of three-fourths of the crown and one-third of one root of knife edge shape. A few hours subsequently she felt greatly relieved, the soreness in the lung diminished, the coughing ceased, and she rapidly recovered her usual health.

NITROUS OXIDE AND ETHER.

BY DR. ALEX. WILSON, F.R.C.S.

IN the combination of nitrous oxide and ether we have the most perfect anæsthetic agent at present available. The advantages of both are fully obtained without the disadvantages of either. There are combined all the best features of nitrous oxide, its pleasantness, and its rapid action with the prolonged anæsthesia of the ether.

The patient passes quickly under the influence of the gas, and once unconscious, the ether is gradually turned on, and insensibility can be maintained indefinitely by its action.

There is no struggling, no coughing, or resisting the ether, and the salivation is reduced to a minimum, or is entirely absent.

There is further, the great advantage that the anæsthetic effect can be carefully graduated. If only a little extra time is required a little ether, with the last bagfull of gas will sensibly prolong the nitrous oxide anæsthesia without leaving any ill effects in the way of sickness. The stimulating effects are most marked.

There is no need to dilate upon the phenomena of the nitrous oxide and ether anæsthesia, they are similar to those produced by ether alone. Of course it requires practice to be successful with it.

The time at my disposal does not permit me to notice methylene, bichloride, and other anæsthetics. My experience of them has not been really extensive, and not such as would lead me to prefer any of them before gas and ether or chloroform as routine anæsthetics.

In conclusion, I would like to tell you that I began my career as an administrator of anæsthetics, with a strong prejudice (possibly inherited), in favor of chloroform. As sole administrator of anæsthetics to the Infirmary for four and a half years, my total number of administrations of anæsthetics amounts to about 5,000, the great majority of which are chloroform cases. It was after an extensive experience with chloroform that I began to use ether, and now, though I would never hesitate to use chloroform, I infinitely prefer gas and ether. This preference for ether (given with gas), is also shared by certain surgeons, for whom I previously used to give chloroform. The transition from chloroform to gas and ether was easy, and the advantages self-evident, but I admit it was with difficulty that I broke myself in to the giving of pure ether.

EXOSTOSIS.*

BY DOUGLAS E. CAUSH, L.D.S.I.

BEFORE reading the paper I have the honor of bringing before you to-night, I desire to thank Mr. T. Charters White, for had he not drawn attention in the *Journal of the British Dental Association* to the method of preparing hard sections by means of ground glass and pumice powder, this paper would probably never have been written. Having tried the method as suggested by Mr. T. C. White, we were surprised at the ease with which hard sections could be prepared. After having prepared a few of these and not understanding the variations of structure seen under the microscope, we were led to consider the desirability of studying the subject of exostosis more fully than we had previously done.

The plan adopted was to take a tooth and cut off as many sections as it was possible to obtain, commencing at the apex of the root, and leaving off at that point of the tooth where the enamel joins the cemental tissue; thus a series of sections were cut from each tooth. These were numbered as cut off and mounted in their consecutive order, thus enabling us to examine any portion of the root, and to trace any modification of the tissue seen under the microscope. We shall this evening, by the aid of some of the slides so prepared, bring before you the result of our examination.

One of the first things noticed in the roots of teeth exostosed was the absence of the original layer of cemental tissue as seen in teeth of normal structure, and in many cases great alteration in the granular layer; by the granular layer we refer to that layer of somewhat porous tissue existing between the dentine and cementum at the point of union of the two tissues.

The original cement layer was in almost all cases absent at or near the apex of the roots, and instead of the well-marked line of demarcation between the two tissues, the dentine terminated in an irregular manner, the edge of the dentine being entirely broken up, while in place of the granular layer there is a mixture of the two tissues, oftentimes showing in the dry sections large

* Read before the Odontological Society of Great Britain.

irregular spaces, these spaces probably having been filled with semi-fluid matter before the teeth were extracted.

Nearer the crown this absorption was much less marked, though here and there the dentine was scooped out at different points of the tooth and afterwards filled with cemental tissue, yet the nearer the crown the more perfect the granular layer; but at those points where absorption had taken place the line of demarcation was much more definite than at the apex.

These changes are probably due to the fact that in all cases where new tissue is being formed, one of the earliest stages is a slight increase of the blood supply, so slight, perhaps, that it does not produce any feeling of discomfort to the patient, while on the other hand it does produce increased activity in the cells forming the alveolo dental membrane, and at the point where there is an increased blood supply the cells become active, and there are probably a large number of cells developed, similar in character to those cells known as giant cells or osteoclasts, their duty being that of absorption. This increased blood supply produces one of two results, the cells either commence to absorb the alveolus, or the cemental layer surrounding the dentine. I think when the irritation is slight, its first action is upon the cemental tissue, and these cells are developed in the alveolo dental membrane on that surface which is attached to the layer of cemental tissue; these cells at once commence to absorb the tissue, and after having absorbed the original layer of cementum pass on to the granular layer. This layer being but imperfectly calcified is easily absorbed away, and the absorption goes on till the cells come in contact with the dense and more calcified tissue of the dentine; here, as a rule, the absorption ceases, but if, as is sometimes the case, the dentine at this point is imperfectly calcified, the absorption goes on till the dense portion of the tissue is reached, thus producing the irregular margin as seen in some of the sections after the granular layer and soft portions of the dentine have been absorbed away, and, as the cells come to the more perfectly calcified tissue, this process of absorption receives a check and is discontinued, plenty of room having been obtained. A change now takes place in the cells, they no longer press upon the tissue, and thus they cease their functions, while many of them become changed in character to true cementoblasts or cementum producing cells; these soon calcify after others are

developed, and a layer of new tissue is formed close to the dentine, partially filling up the irregular spaces previously produced by the absorption, while here and there, entangled amongst this new tissue, are to be found a number of cells corresponding to the giant cells already referred to; these cells are colored by the carmine stain, and a great many of them occur in some of the slides we have examined. Leaving now for a short time the apex, and on examining the sections nearer the crown, we find here and there scattered over the section, certain portions of the dentine absorbed away in semi-lunar cavities, and these cavities filled with cemental tissue. These markings have already been brought before this society by Mr. G. Henry, of Hastings, in a communication entitled "Enostosis."

The absorption is, as a rule, restricted in area, but usually of much greater depth than the absorption as seen at the apex. We shall endeavor now to throw on the screen slides showing this form of absorption. In many of these sections it appears as if the absorption does not take place until after one or more layers of cemental tissue has been added to the root of the tooth, thus differing from the early stage of absorption already spoken of. Dr. G. V. Black well illustrates this in his work "On the Periosteum and the Peridental Membrane."

We will now ask you to go back so that we may consider the development of the cemental tissue. After the cementoblasts have been active for sometime, and a layer of cemental tissue has been calcified around or partially around the root, there appears in many cases to be a time of rest, and this time of rest produces certain markings that appear somewhat like lines surrounding the dentine. These lines are known as "incremental lines of Salter"; they do not mark out equal layers of tissue around the dentine, but are frequently very irregular. We may often find on the one side a large deposition of tissue, while, on following the incremental lines, we find they contract until they are but a very slight distance from the previously formed line. These lines also enable us to draw conclusions as to how the tissue has been deposited whether it has been rapidly deposited, or otherwise; for in the rapidly-deposited tissue there is usually very few lines, but a large number of lacunæ. These lacunæ are, as a rule, large, and with plenty of canaliculi radiating from them, while in the slowly-deposited layer the lacunæ are much smaller and with

fewer canaliculi; the lacunæ are also, as a rule, further apart, and the tissue is at many points an almost structureless matrix. This condition appears to be produced by continuous irritation, though the irritation may be so slight that the patient is entirely unconscious of anything being wrong with the tooth, and I believe it may be produced by slight alteration of the articulation, or any other slightly disturbing factor that will keep up continuous, but slight irritation of the membrane surrounding the cemental tissue. In those cases where the incremental lines are manifest there have been times of rest, and each layer appears to be distinct from its predecessor; this I think can easily be understood when we consider the growth of the cemental tissue—it is from within outwards, that is to say, from the surface or edge of the dentine towards the alveolus. May not this also help us to form correct ideas as to the way in which the tissue has been re-absorbed, for in many cases, after one, two, or more layers of cemental tissue has been deposited, there are definite lines of re-absorption, this probably taking place after a time of rest and on the renewal of activity. This re-absorption, is also well shown by Dr. Black in his work already referred to, at a later period a fresh layer of tissue is re-deposited to fill up the cavities produced by the absorption. This absorption may be produced from a larger blood supply inducing increased activity in the cells, on the inner surface of the membrane, produced by periostitis or even the more acute alveolar abscess. Some of these markings are certainly produced by the latter, for we frequently find that, a large portion of the deposited tissue has been re-absorbed in those cases where there has been either acute or chronic abscess. We also find in some of these cases, especially where the abscess has been chronic, not only that the cementum has been absorbed, but that even the dentine has been absorbed, leaving pits or depressions that sometimes pass almost into the pulp chamber; and even these are found in some cases to be lined or filled with a fresh layer or layers of cemental tissue; this occurs in cases where the tissue has become healthy after the abscess had enlarged the cavities. The excavations of a semi-lunar character as seen nearer the crown in the granular layer, are probably produced at those points where the dentine is defective in structure, and had been able to examine the tooth prior to the absorption of the tissue, we should probably have interglobular spaces and imperfectly calcified tissue.

We also noticed that in the additional tissue there is oftentimes a number of canals, many of them having a lining membrane, and it appears as if the new tissue had been deposited around the blood-vessels in the alveolo-dental membrane, and by the presence of a membrane in these canals we may presume that they were used for their original purpose after the new tissue had calcified. It would appear as if it was easier for the newly deposited tissue to pass around a blood-vessel than to absorb the tissue composing the walls of these vessels, thus we find in the cemental tissue, canals both transverse and longitudinal; these canals probably supply nourishment to the tissues, and in some cases, I believe, to the pulp itself. This now brings us to the next point of consideration, the connection between the pulp and the cemental tissue. In many cases we found there was an intimate connection between the two through the dentine, by means of canals, these in many cases passing at right angles through the dentine. Some of the canals where passing through the dentine, are found to be lined with a tissue corresponding in microscopic structure to that found in the cemental layer, and it would appear as if the canals had in some cases been larger than they were at the time of the extraction of the tooth, and had been reduced in size by the deposition of a tissue having lacunæ and canaliculi as in the cementum.

Another point of interest is the external contour produced by the additional tissue. This tissue oftentimes unites two or more roots together, and forms one solid mass of tissue. Though much new tissue may have been deposited it is very exceptional indeed to find ankylosis of the roots to the roots of adjoining teeth, or even to the walls of the alveolus, and I think this may be accounted for by the fact that as the cemental tissue is deposited on the cementum, we frequently find the alveolo-dental membrane contains a number of giant cells near the external surface, and doubtlessly these cells absorb the alveoli. At the same time the new tissue is being deposited upon the surface of the cementum, the work of these cells being the same as in the case of the permanent tooth, where the cells in the membrane absorb the roots of the temporary teeth, and thus there is always a layer of membrane between the two tissues, that of the cementum and that of the alveolus. In those cases where a piece of alveolus has come away during extraction, I have only found the two con-

nected by fibrous tissue, and there has been no true bony tissue uniting them. We also found in some cases the cemental tissue was deposited in irregular patches and nodules over the surface of the roots, and in such cases it is usual to find the original cemental tissue has been absorbed away at these points, and the dentine has been scooped out, leaving a series of semi-lunar cavities; these cavities are afterwards filled with new tissue, and I think this is the way in which the change spoken of as "Enostosis" has been produced. At the margin of this new tissue we frequently find the tubuli of the dentine anastomosing with the canaliculi of the lacunæ of the new tissue, and thus forming a direct means of communication, either of sensation or of, in some cases, plasma for nourishment to the tissues to or from the pulp. This also is the cause, I believe, of the hyper-sensitiveness of that portion of the dentine directly under the enamel. The interglobular spaces are filled with a semi-calcified substance, and these spaces are brought into communication with the pulp through the tubuli. That these tubuli are minute canals filled either with a fluid, or semi-fluid may be demonstrated as follows: Take a newly extracted tooth with a live pulp, and if it can be obtained from a young patient so much the better, as the tissues are less thoroughly calcified; then with a corundum wheel grind until the pulp is almost exposed, afterwards break through the thin wall of bone to expose the pulp, place this in alcohol for a few days, or if necessary weeks, then place it into an alcoholic solution of any of the aniline dyes and allow it to remain in this solution for a few days; then take the tooth out and wash thoroughly in water, and after it is thoroughly washed rub down between two pieces of ground glass with pumice powder and water, finishing with water alone; after it is rubbed down mount in balsam with the surface water removed as suggested by Mr. White, now examine with $\frac{1}{8}$ -inch power, and I think there will be no doubt as to the condition of the tubuli. Such a section I have with me and shall be pleased to place it under the microscope. As we may imagine, where we have a large amount of new tissue deposited, it is not at all an unusual thing to find encysted lacunæ in this tissue, as if for some cause the single, or perhaps a group of two or more cells, with their walls absorbed away have become calcified and are quite distinct from the surrounding tissue, and this brings us to the last change we wish to

bring before you to-night, and that is, the alteration of the shape and condition of the pulp chamber and canals. In exostosed teeth we have noticed, especially in those teeth that have been much exostosed, that there is a great alteration in the character of the chamber or canals, and in the dentine surrounding the same. Rarely do we find that there is any pulp-calcification, as seen in those teeth where secondary dentine is produced, or as seen in cases where pulp stones are produced by the partial calcification of the pulp; but in cases where there is any amount of exostosis it would appear as if absorption of the dentine surrounding the pulp had gone on at the same time the changes were taking place on the exterior surface of the root, so that the canals became enlarged, and that in a most irregular manner. We frequently find the canals of two or more roots thus form one continuous canal, and in many of these irregular (oftentimes semilunar) excavations giant cells (osteoclasts) are seen similar in character to those seen between the dentine and the cementum, and in the alveolo-dental membrane. It would appear as if these cells were the motive power for producing these excavations.

There also appears to be a second stage in the changes that take place, and this also agrees with changes that take place on the exterior of the root, namely a redeposition of tissue after the absorption has taken place to, partially—or in some cases fully—occupy the space left by the excavations previously made.

This tissue corresponds in character to the tissue being deposited upon the exterior surface, and is in many cases the same in microscopic structure, with lacunæ and canaliculi anastomosing with those surrounding them in the newly-deposited tissue. May not this show us why we have such difficulty in diagnosing between exostosis and disease of the pulp, though as far as we have been able to ascertain, gradual and diffused exostosis does not produce any acute pain, but where acute pain has been induced, the new tissue has been deposited at the apex of the root or roots, and constricts the pulp itself at the point where the pulp leaves the apex of the tooth; or exostosis may produce pain in those cases where we have slight irregular patches (nodular) of new tissue deposited over the root. At these points there has been absorption of the original cemental layer, and penetration into the imperfectly calcified dentine in the granular layer, thus setting up irritation through the impulse passing through the tubuli of the dentine direct to the pulp itself.

WHY IS IT?

[In an editorial under this title in February OHIO JOURNAL, we inquired the reasons for non-attendance of so many of the dental profession at dental society meetings. The following is one of the replies thus far received.]

Reply.

EDITOR OHIO JOURNAL OF DENTAL SCIENCE:—In answer to “Why Is It?” in February number, I submit the following:

In the writer's humble opinion, the reason why attendance at dental society meetings is not larger, is due primarily, to the increase in the number of these societies, and your proposition is true in the individual case only. In reality, the aggregate attendance is larger than formerly and is increasing all the time. But long division must necessarily portion out to each a meagre limit, which, from the nature of things is not always uniformly distributed, because, those who seek the benefits these meetings afford, naturally and wisely choose to go where the best attractions are offered. Consequently, the less attractive meetings are but poorly attended.

The general attendance is probably not what it ought to be, and altogether out of proportion to the number of men in active practice. But, when allowance is made for many (far too many) who are ineligible to membership, as in Ohio, and when we consider the demands of Local, District, State, Sectional, National and International organizations, each, except the latter, meeting at least annually, it means, if all these can exist, and they do, that a goodly number must in the aggregate attend. It means also, that a majority of practitioners cannot even think of doing justice to all of them, nor afford to spare the time and necessary expense to attend but few, however strong the inclination may be to go oftener, assuming, that their principle source of income is from dental practice.

Another reason why attendance upon society meetings is not larger, is due to the many excellent dental journals which furnish their readers with reports of the proceedings of every important meeting held, besides much other, original and valuable matter. This in some degree reduces the importance of actual attendance, and in a large measure compensates those who, not always from choice, remain at home.

Again, society organizations have been charged with practicing questionable political methods in the distribution of places of honor. If this be true, the evil cannot too speedily be eradicated, as it is an element of destruction and disorganization, which will operate against the best interests of any society. Repelling, rather than attracting membership.

Lack of system, in conducting the proceedings of society meetings, the toleration of "go as you please" methods, is another evil that should be relegated to the past. Many good papers, which have required much time and thought in preparing, fail to bring out intelligent discussion. Too often the strong and essential points of a paper are entirely lost. This should not be, but so long as the methods continue which prevail in many of our otherwise excellent societies, just so long may we expect the discussions following the reading of papers, to be either limited, heterogeneous to the real point at issue. There are of course, always present some, who have the ability to grasp at once intricate propositions and new problems that may be advanced. Yet, even they, are often handicapped; besides, many of them are reluctant to do all or most of the talking.

In consideration of the good that can be done by well conducted society meetings, I venture to advise the adoption of the following plan by the executive committee of the Ohio State Dental Society. Begin early to solicit papers for the next meeting, urging the authors to deliver their product about a month before the meeting takes place. Immediately upon the receipt of a paper, assign it to some one for examination, whose duty it shall be to prepare himself for opening the discussion following the reading of the same. Thus, more members will be brought into action, and the results must be more satisfactory. Such a plan has been more or less in vogue in other societies, with infinitely greater benefit to the largest number.

Our State Society should be equal to the best, and there is no reason to doubt that the meeting in Columbus next December, will in every respect be so attractive, that the attendance will be the largest in its history.

OPTIMUS.

COMPILATIONS.

BORDERS BETWEEN THE NATURAL AND ARTIFICIAL IN CROWN- AND BRIDGE-WORK.*

BY CALVIN S. CASE, M.D., D.D.S., JACKSON, MICH.

THAT part of dentistry which has for its object the attachment of artificial dentures to crowns and roots of natural teeth is old enough for us to judge of the value of methods, and to intelligently discuss features of the operation which will have the greatest influence in securing for it permanency and continued healthfulness of adjacent tissues.

Notwithstanding the fact that almost every educated dentist claims to possess sufficient skill to at least properly prepare a root, fit a band, and set a finished crown, I believe there is no part of our practice where the advantages of mechanical perfection in the fine adjustment of artificial to natural parts are so persistently and willfully ignored. This is largely due to the fact that an artificial crown can be made to present a pleasing appearance, and to a casual observer possess all the requisites of firmness and permanency, yet with the gum innocently concealing a cause that must surely result in total failure.

The profession is very decided in her rules relative to the finish of fillings, and quick to manifest disapproval of an operation that leaves overlapping edges of gold at cervical borders, even though lying far beneath the margin of the gum. But how is it in regard to the free edge of a band for an artificial crown? Does anything like the same anxiety arise relative to perfection of joint and finish?

In many instances, it would seem in this particular that the only aim was to produce an artificial crown that would not immediately loosen and come off, with little or no regard for conditions that are considered exceedingly important and necessary at the cervical borders of fillings.

In proof of this, look at the turgid condition of the gums above a large proportion of crowns and bridge dentures that have

*Read before the Anniversary Meeting of the First District Dental Society of the State of New York, January 18, 1892.

been worn a year or longer. When an instrument is passed along the edge of such bands, can you turn away from such an operation without a blush that this is called dentistry? and not infrequently from the hands of one who ranks high in the profession!

It will be the purpose of this paper to present certain principles relative to the construction and fitting of band extensions to artificial crowns, with the hope of stimulating efforts for greater perfection and a higher appreciation of its demands.

In this connection I shall endeavor to describe a course of procedure for this part of the operation of crowning,—which was casually mentioned by me in a paper read before the thirtieth annual meeting of the American Dental Association,—believing, after much experience with other methods, that it possesses elements in its favor not easily attained in any other way; and if followed in detail, will enable a skillful operator to most nearly approach that perfection of the operation so necessary to the continued healthfulness of sensitive living tissues in contact with the band.

As it is impossible at best to obtain the same perfection of adjustment and finish at the edge of a band as at the margins of fillings, its relative position to the free margin of the gum is a matter of no small importance as having influence directly in producing irritation and inflammation of adjoining tissues, or as serving as a means for retaining decaying food and secretions, causing disease and ultimate failure.

A number of leading dentists have claimed that a band should be extended to, but not beneath, the free margin of the gum.

While this would have many advantages, it is rarely possible with porcelain-front crowns, and in all instances where it is necessary to inclose portions of the root broken down by decay; and if the band is extended only at these places, it seems to me that more danger will arise at points where it emerges from the gum than will occur if it continues around the root sufficiently far beneath the gum to prevent the lodgment of debris along its border.

Further: in those cases where it is possible to regulate the relative position of the free edge of the band on teeth back of the first bicuspid, to be used for crowns or bridge-piers, I would

advise that there be an appreciable distance between the band and the gum-margin, and in these instances to remove only so much of the enamel from the sides of the tooth as to produce a sufficiently long and rigid bearing to the crown. This will permit the operator to finish the edge of the band against smooth enamel surfaces with hardly a perceptible shoulder, and, what is of greater importance, the patient will be able to keep it clean.

Where a band for an artificial crown extends beneath the free margin of the gum, it should be thin and perfectly finished at the edge before adjustment, and made of material which can be easily burnished into all the inequalities of the root.

I believe the main fault in this class of crown-work is in making the band too thick, and of such rigid material—with a view of adding strength and durability to the work—that it is impossible to properly fit and finish it after the crown has been placed in position.

I have heard the argument: that the root should be shaped conically, so that when the band is *driven* on, it will be stretched to a close joint at the edge. This is theoretically possible, but not often accomplished in practice with posterior teeth. With the most careful operation, projecting edges will often be left at one or more points, which, with the natural depressions across which the band must inevitably span,—*if not subsequently fitted*,—will leave irritating edges, V-shaped spaces, and all the evils so prevalent and discouraging that follow.

More successful results would be accomplished if it was more often considered that the principal object of a band is to prevent failure of the crown by protecting the root and adjacent tissues from disease, and that sufficient added stability could be given to the completed crown by a proper construction and fitting of the post.

For the latter I prefer round clasp-metal wire (Nos. 18 and 19, E. S. G.), because of its great rigidity and strength; and I endeavor to fit it in the reamed canal with as close a joint as will allow for the setting of the crown.

Where it is possible, by closely fitting the post its entire length into a socket in the root, I not only obtain great stability for the crown, but prevent its lateral movement during the process of finally burnishing the band against the sides of the root. And further, it is a well-known property of the oxyphosphate

cement that it clings with far greater tenacity between close-jointed surfaces than when a wide space is left to be filled with it.

I am decidedly in favor of the use of pure gold for bands. It possesses important qualities not equaled by any of its alloys, and, if properly manipulated, no mechanical difficulties will arise in its use, as I shall endeavor to show.

The objections to it have always arisen from attempts to use it in the ordinary way of using coin or other rigid gold alloys; which is to obtain a measurement of the root with wire for the length of the band, which is cut, soldered, and then fitted by bending with pliers.

While, even with this method, pure gold is preferred by many, twenty-eight or twenty-nine gauge is found to be so exceedingly soft when annealed by the soldering process, and so easily bent and stretched in fitting, that it is at once abandoned by a majority of operators, like thousands of superior things that are "born to blush unseen," because of the unwillingness of men to abandon familiar ways and follow in detail other methods which would insure a successful and accurate result, even though its deviation from beaten paths presents difficulties of no special moment, requiring only the same degree of skill.

In order to use pure gold for a band most successfully, it should be made upon a form of the root. It is not strange that so many object to the use of forms, considering the amount of time and trouble that is usually expended in an attempt to make that which should require but ten or fifteen minutes. They often select a piece of wood that is inappropriate and several times too large, and then laboriously proceed to cut a tenon having a broad shoulder similar to a cabinet fitting. If, instead, they would procure a hickory whip-stalk at a harness store and cut it into pieces six or eight inches long, they would have material from which might be selected a piece that would require but a few strokes of the file to reduce to the proper size and shape.

The advantages of a form are, first, after the band has been soldered, one is enabled to place it on a form the exact shape of the root and burnish it to perfect and sufficient rigidity; second, if the band has been cut too short, it can be easily stretched over the form, without subjecting the patient to the painful operation of fitting at the chair, which also is often exceedingly annoying to the operator and a waste of time; third, after the gum-margin

line has been determined and the free edge of the band cut parallel to it, it can be reversed on the form, which holds it firmly in shape while the edge is being filed thin and finished; fourth, if at this time the band or ferrule is found to be too large, it can be readily made smaller by reducing the form, replacing the annealed band upon it, and drawing a broad-bladed burnisher over its surface between the thumb and finger, which firmly grasps and holds its loose portion so that the molecules of the metal are driven together by pressure from the tool. (I may add here, the facility with which this can be accomplished with pure gold, even after the face-plate has been soldered on or the crown finished, and also the ease with which it can be burnished to perfectly fit the root, are advantages not equally possessed by any other grade of gold); fifth, after the band for a porcelain-front crown has been placed upon the root and the line of the gum-margin marked on its outer surface, it can be replaced upon the form, which, with the band, is cut to conform to the desired shape of the cap. I now fit and solder the face-plate, using very thin platinum (No. 32, E. S. G.), and believe that I am greatly aided by the form; sixth, as the mechanical work is done almost entirely upon the form, the ease with which the frail piece may be handled, filed, burnished, and finally finished without danger of bending it or destroying its shape, makes the form an implement, in my estimation, of inestimable value.

For taking a measurement or pattern for a form of the root, after it is prepared, I prefer surgeon's silver suture wire (No. 26 or 27), because there is not that recoil of the loop upon its removal from the root that will occur with soft iron or copper wire. This is of no importance when the loop is to be cut, but a very desirable quality for purposes of a pattern for a form which is intended to represent the shape as well as the size of the root.

The ductility and rigidity of silver are favorable qualities for this purpose. It can be easily stretched, and in bending will retain any shape given it.

I first form a loop of the wire around a conical-shaped wooden handle (see Fig. 1), by quickly twisting the ends together with my fingers, with a view of making it slightly smaller than the root to be crowned. After giving to it approximately the desired shape, I place it against the end of the root, when I can at once see if it is too large or small, and change the size by

FIG. 1.



Fig. 1 represents instrument for forming loop and inserting it around the root.

twisting it to a smaller place upon the handle or by forcing it farther along. The loop is now held by the twisted ends in one hand, and with an instrument (Fig. 1) in the other which is grooved at the end to fit the wire (one lip of which is a little the longer) it is first placed partly around the root, and the remaining portion forced out and over the peripheral edge.

If any one who has found the operation a difficult one with binder's wire where the root is broken down by decay and submerged beneath overhanging gum, will try this method, I feel confident he will be pleased with it.

I cannot leave this subject without a few words relative to instruments for removing the enamel preparatory to crowning; for upon this particular operation hinges the possibility of obtaining that perfection of joint so eminently desirable.

Without considering those impractical affairs called "root-trimmers," intended for this purpose, the instruments that are used most, in fact the only ones that I know of in the market of any practical value, are

FIG. 2.

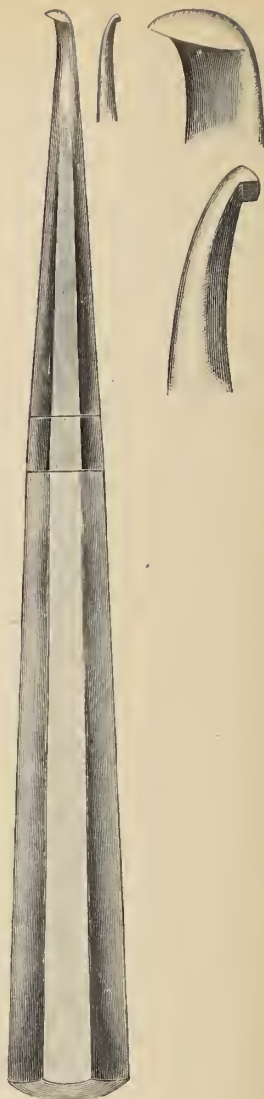


Fig. 2 is a fair representation of the point of one of a set of four enamel-cleavers, which are so constructed as to reach the enamel of any root in the mouth.

certain forms of scalers, which are tempered properly no doubt for the removal of salivary calculus, but are not calculated for

cutting and cleaving enamel when its removal is at all difficult.

If enamel is cracked and fissured, it can be easily cleaved from its attachment to the dentine; but if a large portion is unbroken in its integrity, its removal is a matter of no small difficulty with an instrument that is incapable of first disintegrating it.

In order to produce the most effective enamel-cleaver, there are certain principles that must be observed by the maker, and to which form, for convenience of use, should always be subservient. First, it should possess a temper that will take hold of the hardest and smoothest enamel surface in the same way that a diamond takes hold of glass; second, for this purpose the blade should possess sufficient body to allow bringing to the highest possible temper without burning the steel, and afterward to permit use without fracturing the cutting-edges or point; third, the necessity of having the blade sufficiently small to pass readily beneath the margin of the gum also necessitates that it be well sustained upon a strong neck, to prevent breaking, especially as in the form I suggest it is impossible to draw the temper of the latter without destroying the effectiveness of the cutting-edge.

I would advise that it be so shaped (see Fig. 2) that it can be partially rotated under the margin of the gum to present a sharp point toward portions of enamel that will not easily cleave off, with a view of fracturing it as a diamond cuts glass, breaking it up into small sections that can then be quickly detached and the sides straightened and smoothed by the broad blade of the instrument.—*Cosmos*.

ALL SORTS.

TO REMOVE ANILINE STAINS from the skin, Unna uses in succession a five per cent. solution of sodium chloride, peroxide of hydrogen, and lastly alcohol. The stains disappear wholly with this treatment.—RUNDSCHE.

WARM ETHER APPROVED OF AS AN ANÆSTHETIC.—DR. G. PARTAGAS, of Barcelona, has recently advocated the use of ether warmed to 31° C. (78° F.) as far superior in safety and satisfactory results to the usual method of inhaling the vapor at a lower temperature. In one case a patient undergoing a severe operation was under the influence of ether for two and a half hours.

INGENIOUS GOLD BOX.—MR. HUMBY showed an ingenious arrangement for keeping gold cylinders ready for use. Two large thick slabs of plate glass are brought closely into apposition, the top one being immovable, and forming a cover, whilst the lower one slides forward upon the other and contains rows of crypts, each depression containing a single cylinder.—*Jour. Brit. Asso.*

GOOD SPECIMEN FOR THE PROTECTIVE ASSOCIATION.—The Curator stated he had received a specimen for the museum from Mr. Oswald Fergus, of Glasgow. It was the left upper lateral root, on which a tube tooth had been crowned as long ago as 1840. The crown was firmly attached to the root. The corresponding tooth of the opposite side contained a gold filling inserted fifty-nine or sixty years ago.—*Odont. So., Jour. Brit. Asso.*

CHLOROFORM AS SAFE AS ETHER.—DR. ATTHILL regards chloroform at least as safe as ether, if the following conditions be observed: 1st. The chloroform must be pure; 2nd. It must be administered from an inhaler which will permit the admixture of an abundance of air; 3d. The anæsthetizer must pay strict attention to the pulse and respiration, and ignore the operation itself; and 4th. The needful degree of anæsthesia must be steadily maintained.—*Jour. Amer. Med. Asso.*

A CONVENIENT MIXING SLAB.—If the heel of the hand is used for a palet in mixing oxychloride or oxyphosphate, there will be no need of warming the glass or porcelain slab. Use slab merely to incorporate the fluid and powder, and then taking it up on the spatula, transfer to the hand and finish kneading, and carry to the cavity. The heat of the hand keeps it plastic for a longer time. For a small quantity I use the hand only; but a large quantity produces too much heat for comfort. After a little practice, my word for it, no one will bother about a warm slab.—J. R. CLAYTON, Shelbyville, Ind., *Items*.

AN AGREEABLE BICHLORIDE SOLUTION.—I have mercuric bichloride on my shelf in a bottle, containing a one per cent. solution. When wanted, I prepare from this a solution of the proper strength, one to one thousand; but instead of water I take rose-water. The bichloride solution simply has a very disagree-

able taste; but if a mixture is made of one per cent. solution bichloride and rose-water, in proportion of one of the former to nine of the latter, you have an equally efficient preparation, and the nasty bug-poison taste of the simple liquid is supplanted by an agreeable rose-flavored one.—DR. G. S. ALLAN, *Inter*.

“IT GREW AND IT GREW.”—DR. A. P. JOHNSTONE has in mind a case where a filling was inserted midway between the cutting-edge and the gum-margin of a tooth, and the gentleman in whose mouth it is, is under the impression that that filling is constantly getting toward the end of the tooth. Whatever the change is, it has been going on for fifteen years, and the filling is now nearly to the point of the cutting-edge. Like causes will produce like results when acting under similar circumstances. If we can get at the cause of a given result, we have some right to hope to again produce that result; so that if the teeth do grow, it is a fact of the utmost importance to us.—*Sou. So. Report, Cosmos*.

TO RELIEVE PAIN AFTER EXTRACTION.—When pain continues immediately after the extraction of a tooth great relief is often afforded by placing in the socket a pellet of cotton moistened with equal parts of chloroform and tincture of aconite. Or a mixture of one drachm of camphor with two of chloroform, applied on a pellet of cotton to the socket, will likewise afford relief. When the pain continues for several days, as it sometimes will, the following, applied to the socket and to the gums will afford relief:

R	Morphinæ	-	-	-	gr. vj.
	Tincturæ aconiti	-	-		
	Chloroformi	-	-		
	Alcoholis	-	-	aa	f. oz. j. M.

ANTISEPTIC PROPERTIES OF CINNAMON.—After prolonged research and experiments in Pasteur's laboratory, M. Chamberland is reported to have come to the conclusion that no living germ of disease can resist the antiseptic power of essence of cinnamon for more than a few hours. It destroys microbes as effectively if not as rapidly as corrosive sublimate. Even the scent of its is fatal, and M. Chamberland holds that a decoction of cinnamon ought to be taken freely by persons living in places affected by typhoid or cholera. There is nothing new in all this.

In the oldest known medical prescriptions for infectious diseases cinnamon was a prominent ingredient, and it was in great request during the plague of London. There is no reason for doubting that the physicians of those early days were as familiar with its medical properties as with its odor.—*Exchange*.

RUBBER-DAM is covered with powdered soap-stone by manufacturers, and if dentists will do the same after washing and drying, they will find it (the dam) will slip over the teeth "as if it had been greased," and not feel so bad in contact with the face. That has been my practice for several years. I keep one of these individual peppers filled ready for use. Powdered soap-stone is used in stores to dust kid gloves; also in stores, so it can be readily procured.

It is also just the thing to dust the packing of vulcanizers to prevent sticking.

To prevent modelling compound from sticking to the natural teeth in taking impressions, take a large pellet of cotton, dip it in glycerine and thoroughly oil the teeth; then take impression before patient closes the mouth. Nothing disagreeable to the patient as from use of oils.—ABIEL BOWEN, Medina, N. Y., *Items*.

DENTISTS SHOULD HAVE THE FREE USE OF BOTH HANDS.—I do not hesitate to use my engine with my left hand as quickly as I would with my right. Why children are ever taught to acquire the habit of depending upon one hand, and thus partly losing the use of the other, is one of the mischievous mysteries of civilization. It is one of the follies of fashion. A dentist who cannot use the left hand may acquire its use as I did, by practicing writing at all spare moments. Do not write as one does with the right hand, but reverse it; that is, begin at the right-hand side of the paper and write toward the left, or what we would call backward. This is because whenever we use a muscle a certain impulse to the same end is sent to the fellow of the opposite side, so that our long habit of writing with the right hand has, to a certain extent, educated the muscles of the other hand to the same purpose.—R. OTTOLENGUI, *Cosmos*.

A GOOD FILLING FOR DECIDUOUS TEETH.—In filling deciduous teeth it is often almost if not quite impossible to exclude moisture from the cavity sufficiently to permit filling with zinc phosphate,

unless the rubber-dam is used. The difficulty may be overcome in the following manner: Place some of the powder on a glass slab, also a little of the fluid, and beside these a little chloro-percha. Make a rather thin mix of the zinc phosphate, then add to this the chloro stopping, mixing in more of the powder until a thick putty-like consistency is obtained; now napkin the mouth, and dry as well as possible (I prefer cottonoid napkins for this), immediately packing to place, and finishing with burnishers. When it has been impossible to exclude moisture, the filling has been placed in under water, and on removal some time afterward was found adhering to the walls of the cavity. Some of these fillings have stood for nearly a year, and are still good, showing very little wear.—S. E. GILBERT, *Cosmos*.

IN TREATING PYORRHEA ALVEOLARIS, thoroughness in cleansing is of the greatest importance; in the first place, the deposit must be entirely removed by properly-shaped instruments. It is not well to attempt to complete the treatment at the first sitting, but be thorough in what is done. After the deposit is dislodged from the root, wash out the pocket with warm water, and if the alveolus is involved, use engine-burs to cut away until healthy bone is found, then rinse with hydrogen peroxide, and after being sure all debris is removed, protect the soft tissues with napkins, and with a Donaldson broach wound with cotton apply caustic paste to the socket as far down as can be reached. Wait two or three minutes, then rinse with warm water, and pack tannin and glycerin paste in the socket. If the pocket is very deep, lance from top to bottom; this will not give pain, as the caustic paste has obtunded the parts. If the teeth are very loose, tie with silk ligature, weaving in and out, so as to make a strong support.—DR. E. F. STEVENS, *International*.

AMYL NITRITE IN COCAINE NAUSEA.—DR. SHIELDS reported the case of a lady, thirty-five years of age, who applied to him for dental work. Before filling a cavity, he applied to it and the neighboring gum a 10 per cent. solution of cocaine. In a half hour the patient complained of weariness, and then nausea. Whisky was administered. The face became pale, the hands very cold, and soon the patient was comatose. The pupils were dilated, and, strange to say, a hazy condition of the cornea was noticed. Inhalations of nitrite of amyl were used, at intervals,

for an hour, with effect, and the patient was sent home. Was called to her in the afternoon and found her in a hysterical condition, this being followed, apparently, by coma. Nitrite of amyl was again successfully resorted to. The haziness of the cornea was again noted.

What was the cause of this condition? Was it owing to the cocaine, or to the nervous condition superinduced? Could it have been due to contracted blood-vessels?—*Lancet-Clinic*.

A NEW DISC MANDREL.—One of the most complete disc carriers that we have seen has just been devised by Dr. E. C. Moore, of Detroit, Mich. It consists of a screw about one-fourth of an inch in length, with a grooved head upon one end: a screw collar is made that is tapped to run upon the screw, this collar having a flange the same size as the head of the screw. For mounting the disc of paper, or any other material, the screw is passed through it, the collar is put upon the screw and drawn up tightly upon the disc; the other part of the appliance consists of a screw socket shaft that runs into the engine, and the disc, as described, is simply screwed into this socket shaft, when it is ready for use. One or two socket shafts is enough for any number of the mounted discs, as they are put on or taken off in a moment's time by a turn of the screw either backward or forward, as the case may be.

This is one of the cheapest and most efficient appliances for this purpose we have seen. This appliance will very soon be obtainable through the dental depots.—*Ed. Dent. Register*.

A NEW USE FOR GUTTA-PERCHA IN SURGERY.—DR. B. W. RICHARDSON (*Asclepiad*) has found that gutta-percha, by being softened almost to fluidity in hot water, to which a little glycerin has been added, can be made to take up not only tannin and perchloride of iron, but benzoin, carbolic acid, mercurial salts, and many other styptic and antiseptic substances. After it is saturated with the substance added to it, it is allowed to cool until it becomes simply a soft mass, that can be moulded into plaques, dies, or pellets, which soon become hard and remain efficacious for an indefinite time. When required they are softened by immersion in hot water, and can then be moulded, according to the case, into plugs, splints or coverings of dressings. The mass can also be drawn out, under warmth, into a fine tissue,

and used like adhesive plaster, as round a cut finger; where, left to harden, it becomes both plaster and splint. The doctor has tried to saturate the gutta-percha with styptics and antiseptics by dissolving it first in volatile chemical solutions, and then admixing and vaporizing; but he prefers heating it simply in water, or water with glycerin.—*Off. & Lab.*

OPENING UP CAVITIES.—DR. G. L. CURTIS said he had many firilures where he had not direct access to the cavities. He thought it necessary to cut into the masticating surface or to cut into the side of the tooth. In cases where the decay did not extend too near the masticating surface the latter plan was to be preferred, but unless there was a good, strong support for the masticating surface it is better to cut it away and restore it with gold.

DR. F. E. HOWARD said that he did not approve cutting into the side of the tooth, but would make the cavity a compound crown and approximal surface cavity, because when the side of the tooth was cut into and the crown left we would have to anticipate failure, and then we would have to cut away the crown and restore the whole corner,—a difficult and tedious operation. He thought Dr. Curtis's method of using cylinders good, but preferred to use Watts's crystals and the prepared pellets.

DR. F. W. LOW said he had had a tooth filled through the buccal wall, and in about six months the enamel wall broke down, and he had never since favored that style of filling.—*So. Report, Cosmos.*

SYRUP OF IRON CHLORIDE is the tincture of the chloride of iron in a slightly modified form, a sufficient quantity of alkali having been added to counteract the free hydrochloric acid, and a small quantity of the syrup of gaultheria (which, it is claimed, in certain disorders, has a therapeutic value), to render it more palatable. In other words, the excess of acids over and above that necessary to form a perchloride of iron has been eliminated. The preparation is, therefore, acid in reaction; but the relative proportions of the acid and iron have been adjusted delicately that, although sufficiently acid so prevent the precipitation of the basic salts of iron, it is not enough acid to injure the enamel of the teeth. And it is to be noted that, while the teeth are protected from injury, as soon as the preparation passes through the

mouth into the stomach it meets with more hydrochloric acid, and is likely returned again to its original condition, or nearly as it was in the original tincture of the chloride; accordingly, it may be said that the therapeutic value of the syrup corresponds with that of the tincture. Moreover, it is claimed that the syrup as a restorative agent is easily assimilated and more likely to be tolerated by the mucous membrane of weak stomachs than the old form of the *acid chloride*, and is less harmful under prolonged use.—DR. G. W. WELD, *International*.

A SIMPLER METHOD.—At the meeting of the First District Dental Society, State of New York, held in November, 1891, Dr. Rufus G. Stanbrough read a paper describing at length a method of crowning without bands in which the chief benefit claimed was that the artificial tooth “touched the root at all points.” Dr. Stanbrough’s method to attain that end is quite complex and requires many new instruments. A very simple method of attaining the desired end, viz: “having the crown touch the root at all points,” and which the writer has long used, may be made as follows: After reducing the root to the desired shape, take No. 30 gauge pure gold and burnish to the stump; punch a hole in the plate and drive the post (which has already been closely adjusted as to size) to its proper place; remove pin and plate and tack with a small point of solder, then trim gold to nearly correspond to periphery of root, put in place and with burnisher and wooden dowel you can mallet and burnish the gold to a water-tight joint between plate and root. Then trim plate to conform exactly to the periphery of root; fit and back up the tooth—preferably by the Hollingsworth method—and solder in the usual way to the post and cap. When polished you have a crown which fits *most perfectly* over the *entire end of the root*. In cementing to place a thin film of cement will be caught between root and cap, but not enough to injure the strength of the whole.—*Ed. West. Dent. Jour.*

PENTAL AS AN ANÆSTHETIC.—BRENER in a communication to the Royal Medical Society of Vienna, reports having used pental as an anæsthetic one hundred and fifty times in his dental practice. Loss of sensation is produced before complete loss of consciousness. Usually the patient recovers quickly and easily. The effect is produced generally in one or two minutes, and

requires ten to fifty grammes. According to Rogner in the *Wien. Med. Pr.*, 1891, and Hollander in *Nouv. Rem.*, 1891, the loss of sensation lasts about four minutes, and toward the end of the seventh minute passes away. There is no vomiting or other troublesome symptom during the inhalation, nor does headache or sickness occur afterward. The loss of consciousness comes on during the first few minutes, with complete loss of voluntary movement. Rogner considers it the best anæsthetic to use in minor surgery. In spite, however, of these favorable reports, Brener himself had a serious accident. A girl who required extraction of a tooth was placed under the effect of penthal. She had only taken four grammes when alarming symptoms arose,—syncope, apnœa, loss of pulse, and dilatation of the pupil. It was necessary to resort to artificial respiration to restore consciousness. The fact, as Basch and Dittel observe, proves that new anæsthetics, and especially those producing rapid narcosis, require great care in their employment.—*Lancet*.

VULCANIZING WITHOUT A FLASK.—After the plaster is thoroughly dry, coat the models with the rubber dissolved in chloroform, where you wish to use the rubber. After the chloroform has evaporated, warm the rubber of the right size, and with wet finger work it down over the center, holding up the rest of the rubber to exclude the air. “Build up” with warm strips, the same as with wax. In patch-work, if an upper set, dampen the palatal surface with water and fill to top of border with plaster, to prevent the plate springing. Cut away old rubber, leaving the surface rough where you wish to patch. Coat it with the solution and build up with rubber. Heat the teeth, and while hot, press them into their proper places, holding the thumb against the rubber on the palatal side, to prevent it moving inward. Hold them till cool, or dip them into water. With warm knife trim away the surplus rubber, incase in plaster and vulcanize.

I use Doherty’s No. 1 Improved Rubber; the thickness of one sheet being sufficient for palatal surface, thus making a plate uniform in thickness.

Test the non-expansion of rubber thus: Take a smooth piece of *dry* plaster, about two inches square and a half inch thick, and coat one side with the solution. Cut three or four

pieces out of sheet rubber, an inch square, and "build them up" on the plaster-joint a set of "fours," and while hot, press them into the top piece till the under side of the porcelain gum rests in the rubber, not so much, however, as to force the rubber up between the joint. When cool, cut fine grooves in the plaster at the edges of the rubber, extending them on a line beyond the four corners of the rubber, so as to make a perfect cross in the plaster at each corner. When you have a set to vulcanize place the piece, *just as it is*, on top of the flask, and vulcanize it also. If the manipulations have been perfect, I am *sure* you will find the teeth and rubber in the same position as they were before vulcanizing.—B. T. RADCLIFF, *Items*.

EDENTATE JAWS.—As instance of total absence of permanent teeth are very rare, and by some are disputed altogether, an account of two such occurring in my own practice may be interesting. I may add that, as the persons are now living, there would be no difficulty in obtaining further information.

Miss S—s, aged eighteen and a half, daughter of a chief engineer in the Royal Navy, consulted me early in 1888 in consequence of being unable to masticate her food. Upon examining her mouth I found ten temporary teeth, most of them badly decayed. (She informed me she never had any more). They were also more or less loose. I removed them and supplied her with a set, which she now wears. Her hair is thin and generally deficient.

Mr. S—s, brother of the above named, aged twenty-one, bank clerk, consulted me in October, 1891. He had four temporary canine teeth, never had more. I removed these and made him a set, which he is now wearing. His hair is normal in quantity, but very short, curly and black; to the touch it is coarse and harsh, like horse hair. Both presented, about the jaws, the appearance of very old toothless people—pointed chin, sunken lips and small bones. Smell, taste and sight perfect. Average height and weight, and otherwise well developed, and of good education and intelligent. Complexions dark. The brothers and sisters of these present certain deficiencies, but in a minor degree.

Miss S—n, daughter of Captain S—n, Royal Navy, first cousin of above named, has several permanent teeth missing and

her hair is deficient and thin. Her mother and Mrs. S—s, the mother of the two first named, were sisters. This is pretty good evidence that the hereditary tendency is on the mother's side, and yet the mother's teeth were normal in every respect. The grandfather on the mother's side had good teeth, and the grandmother is now living aged eighty-two.—T. S. FOSTER in *Jour. Brit. Dent. Asso.*

THE BEST WAY OF MANIPULATING VULCANITE.—Rubber having the following practical objections, viz: discoloration (especially pink), breakage, porosity, contraction or drawing away from the teeth, as designated by some, and incompatibility with the mucous membrane of the mouth, the question arises: How are we to impart to it that elasticity, toughness, lightness and strength coupled with the bright and translucent life-like appearance that should characterize every artificial denture, and at the same time restore or prevent a sunken in or contracted facial expression, and give the best results in the preparation of the food for alimentation? To overcome these objections we take upper impressions with plaster, using salt to hasten the setting and a few drops of cochineal in the water to color it. Take all lowers with modelling composition, never using it after it becomes old and tough. After making models boil them fifteen or twenty minutes in stearine and prepare wax forms for taking bite, which should be carefully done, so as to indicate the exact length for the teeth, then harden in cold water. Now place a thin layer of soft wax on one of them and put both in the mouth, putting the left hand on the forehead and the right on the back of the neck, force the patient's head back and at the same time directing to close the mouth and hold firm, which will insure a natural closure. The median line is then marked up and down, the position is then noted or marked for the canine teeth. Then, with the point of a small instrument, make a mark in the wax rim from one corner of the mouth to the other, equally dividing the lips. The case is then put in the articulator, and a strip of paper, about one-fourth of an inch wide, is pasted into the upper model with a drop of hot wax, one at each corner of the mouth and one in the center, and coming down to the mark indicating the dividing line for the lips. Plain teeth are then mounted accordingly and the wax gums carved up just as they are to be when the case is completed

and ready for the mouth. And I wish to be understood by this that there is to be no scraping, filing or polishing to complete the case after it is vulcanized, except the little to be mentioned later on. Now, having carved up the wax gums to the proper form, thickness, etc., cut a pattern of No. 60 tinfoil to cover all of the lingual surface of the wax, which is to be well burnished down on that portion of the wax, which is to be only one thickness of pink, with no air chamber under it. The tin is then so trimmed and adjusted as to completely conform to the necks of the teeth. A strip, say one-fourth of an inch wider than the wax rim of the alveolar ridge, is then drawn round from heel to heel, and so completely and so nicely burnished down to the wax, and so accurately trimmed and adjusted, to the festoon margin of the gums that no trace of wax that is to be replaced by rubber will be left exposed to the plaster investment; there should be no trace of wax left on the teeth. The upper edge or the excess in width of tinfoil is then cut into V-shape notches and the V's turned at right angles, then it is ready to invest right up to the upper edge of the wax, with the teeth down; the V's are then turned down into the soft investment of the first half, so as to prevent the tinfoil tearing down in flasking the case after it is packed. The wax is now washed out and the teeth, pins, and all parts are wiped off with chloroform so as to remove all traces of wax. The packing is then done so as to have just one thickness of Poulson pink rubber as a facing for that portion of the labial surface exposed to view when in the mouth, no traces of the red rubber being visible through the pink. No waste gates are to be used, consequently great care must be taken in the process of packing. Now run the vulcanizer up to 275 degrees and let it stand fifteen minutes, then take fifteen minutes to run up to 310, and then cool down slowly.—DR. W. N. MURPHY, *Tex. Jour.*

EDITORS' SPECIALS.

WHY IS IT?

IN an editorial under the above caption in February OHIO JOURNAL, we asked "*why more of the dental profession did not attend society meetings,*" and requested replies from all. Some

replies have been received, but we want more of them and again ask our readers to peruse said editorial and write us their views on the subject. On another page in this issue we publish a reply that came with *permission to publish*. Let us hear from all.

L. P. B.

NEW PUBLICATIONS.

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY. Issue of 1891.

B. H. Catching, D.D.S., Editor and Publisher, Atlanta, Ga.
Price, \$2.50.

But few dentists take all of the dental journals. We might add that but few take more than three or four, and the majority take only one or two. Dentists cannot expect to obtain from these few journals all of the practical information published throughout the world, and so our friend Dr. Catching, conceiving the idea of supplying these additional thoughts, began the publication of an annual: a Compendium of Practical Dentistry. During each year he compiles from all the dental journals throughout the world, the worthy practical thoughts given the profession during that year and presents them in book form to the dental profession.

The Annual before us, issue of 1891, is the second published and contains 241 pages. It is arranged under headings as follows: Operative Dentistry—Prosthetic Dentistry—Crown-, Bridge- and Inlay Work—Orthodontia—Dental Medicine—Oral Surgery—Miscellaneous. Numerous cuts are used to illustrate the text. Aside from the practical articles there is given a synopsis of State Laws governing the practice of dentistry in the United States and Canada, a complete list of dental journals published throughout the world, their editors and publishers, and a list of books and pamphlets pertaining to dentistry published during the year. It is a reference book every dentist should have in his library.

CHART OF TYPICAL FORMS OF CONSTITUTIONAL IRREGULARITIES OF THE TEETH. By Eugene S. Talbot, M.D., D.D.S., author of "Irregularities of the Teeth and their Treatment," etc. Philadelphia: Wilmington Dental Mfg. Co., Publishers, 1891. Price, \$2.50.

This book contains sixteen lithographic plates, size 9 x 9 inches each, with descriptions to each plate. The illustrations are printed in colors and on extra heavy paper. In the preface the author says:

"The object in publishing this work is to illustrate the typical forms of constitutional irregularities or the jaws and teeth, so that the teacher and student can readily comprehend the various positions which the jaws and teeth may assume.

Constitutional irregularities of the jaws and teeth are those aberrations of development of those parts that are formed coincidently with the development of the general osseous system, and are not the result of accident. They are produced either by excessive or arrested development of the maxillary bones.

The illustrations are typical and accurate representations of cases which have occurred in the practice of the author from time to time during the past fifteen years, while the general outline of the jaws and teeth is the same, in no two cases are they exactly alike in detail.

The forms were selected from groups which were arranged from a collection of three thousand models. These forms are very common among the defective classes, such as the idiotic, deaf and dumb, blind, insane and criminal classes."

Charts Nos. I to VIII show the jaws excessively developed in some parts and arrested in others, producing marked deformities in jaws and teeth. Charts IX to XVI show the deformities of the arch and irregularities of the teeth in the upper jaw.

The cuts are exceedingly interesting and form material for study in this direction. They should be seen to be appreciated.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, 1891. S. S. White Co., Philadelphia, Publishers. Geo. H. Cushing, Sec'y, Chicago.

The transactions this year are of more than ordinary interest and cover 262 pages of printed matter, but as we gave our readers a good report of the proceedings immediately after the meeting, we will not present any abstracts at this time. Aside from the regular transactions the book contains a very complete list of dental societies in the United States.

PHYSICAL CULTURE is a monthly magazine devoted to the science of physical development through proper exercises, dietetics, etc. It is of special interest to those leading sedentary lives. Published by A. Cuthbertson, 107 Nassau St., New York.

THE *Dental World*, Vol. I, No. 1, made its appearance in March. It contains 16 pages of reading matter and is the successor to the *Dental Mirror* formerly published in New York. Published monthly by F. W. Leonard, 85 Fifth Ave., Chicago.

SOCIETIES.

NORTHERN OHIO DENTAL ASSOCIATION.

THE thirty-third annual meeting of this society will be held at the Hollenden, Cleveland, O., on May 10, 11 and 12, 1892. The profession is cordially invited. The program prepared is as follows:

Papers.—“Syncope and Asphyxia,” Geo. H. Wilson, Cleveland, O. Discussion opened by S. B. Dewey, Cleveland, O.; Chas. Buffett, Cleveland, O. “Plastics,” J. E. Phelps, Chagrin Falls, O. Discussion opened by E. W. Poole, Cleveland, O.; J. R. Owen, Cleveland, O. “Diagnosis,” J. R. Bell, Cleveland, O. Discussion opened by F. S. Whitslar, Youngstown, O.; C. R. Butler, Cleveland, O. “Crown- and Bridge-Work,” Grant Mitchell, Canton, O. Discussion opened by J. E. Robinson, Cleveland, O.; J. F. Dougherty, Canton, O. “Chemistry as Related to Dentistry,” W. A. Siddall, Oberlin, O. Discussion opened by S. R. Pancost, Ashtabula, O.; F. H. Knowlton, Akron, O. “Infection,” H. L. Ambler, Cleveland, O. Discussion opened by F. A. Douds, Canton, O.; H. F. Harvey, Cleveland, O. “Some results of early extraction of the first permanent molar,” W. B. Conner, Akron, O. Discussion opened by J. G. Templeton, Pittsburgh, Pa.; E. J. Waye, Sandusky, O. “Non-Cohesive Gold and Tin,” Talk by Corydon Palmer, Warren, O. “Queries,” Answered by F. S. Whitslar, Youngstown, O. All questions to be sent to Corresponding Secretary before March 1st, 1892. Voluntary Papers—“Incidents of Office Practice.” Clinics—“Gold and Tin Filling,” S. B. Dewey, Cleveland, O.; C. D. Peck, Sandusky, O. “Tin

Filling," W. H. Fowler, Painesville, O. "Treatment of Abscess (with Fistula) and Filling Root Canals," Henry Barnes, Cleveland, O. If you have anything of interest, please bring it to the meeting.

HENRY BARNES, *Sec'y.*

KANSAS CITY DENTAL COLLEGE.

THE tenth annual commencement exercises of the Kansas City Dental College were held at Kansas City, Mo., March 4, 1892. The degree of Doctor of Dental Surgery was conferred on the following candidates:

C. W. Day, D. K. Bryson, H. B. Engel, H. M. Doyle, C. W. Thompson, H. W. Kelly, A. T. Havelly, W. A. McKee, F. M. Blake, J. C. Buttner, E. P. Noble, J. D. Barton, H. H. Turner, R. E. Barton, O. T. Griner, A. H. Bagby, J. M. Campbell, F. L. Williams, J. D. Neff, I. W. Dills, J. W. O'Bryon, J. W. Butt, J. H. Jenkins, N. E. White, J. G. A. Kydd, A. M. Tutt, M. H. Hopfer, G. L. Tetrick, S. J. Renz, J. B. Woodside, W. E. Highnote, D. F. Pendleton, G. W. Amerman, L. H. Bredouw, F. L. Cobb, F. L. Carter, M. C. Lovell, J. H. Goodwin, G. M. Cross, A. M. Farnham, W. T. Smith, O. A. Smith, S. C. Grant, F. P. Cronkite, G. D. Mitchell, P. E. Wilhite, C. H. Nelson, H. E. Lindas, A. L. Lindsey, E. A. Chase.

INDIANA DENTAL COLLEGE.

THE thirteenth annual commencement exercises of the Indiana Dental College were held at Indianapolis, Ind., March 1st, 1892. The number of matriculates during the past session was eighty-eight. The degree of Doctor of Dental Surgery was conferred on the following candidates:

D. A. Elwell, O.; G. C. Fleischman, Wis.; W. A. Grant, Ind.; E. H. Gage, Ind.; J. H. George, Ind.; H. C. Goodrich, Ind.; C. F. Gray, Ind.; B. F. Gray, Ind.; D. W. Gray, Ind.; W. M. Hall, Ind.; E. A. Smythe, Ind.; R. W. Sessions, Ind.; B. Sellers, Ind.; J. G. Schneider, Wis.; T. W. Scott, O.; E. B. Tyler, Ind.; C. W. Throop, Mich.; F. E. Woods, Ind.; Q. H. Woodruff, Ind.; M. L. White, Ind.; J. E. Henderson, Ind.; F. Wright, Minn.; W. H. Harp, Ill.; A. T. White, Ind.; D. S.

Hontz, Ind.; F. Winchester, Mich.; W. Z. King, Ind.; C. C. Lester, Ind.; W. Anderson, Minn.; D. L. Lucas, Cal.; W. G. Burket, Ind.; B. B. Lockhart, Ind.; B. F. Batson, Ill.; J. O. Miessen, Ind.; G. W. Burch, Neb.; P. N. Maln, Minn.; C. E. Burket, Ind.; W. J. Morris, Ind.; O. Burns, Ind.; W. L. McNamara, O.; J. H. Bloor, O.; W. J. Bradbury, Wis.; G. G. Bilman, Ind.; H. M. Brown, Ill.; W. T. Clarke, Tex.; H. Corken, O.; W. E. Diley, Ind.; H. E. Dewar, Mich.; C. B. Fletcher, Ind.; A. A. Powell, Ind.; E. E. Pierce, Ind.; D. L. Prall, Ind.; P. A. Rood, Ind.; C. V. Runyan, Ind.; M. A. Root, Mich.; W. B. Raidgeway, Ind.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE thirty-sixth annual commencement exercises of the Pennsylvania College of Dental Surgery were held at the Academy of Music, Philadelphia, Pa., on March 2, 1892. The degree of Doctor of Dental Surgery was conferred on the following candidates:

C. E. Algeire, N. Y.; C. M. Ashton, Pa.; A. R. Atwood, N. J.; E. Banton, N. Y.; H. Baumgartner, Pa.; C. Bird, N. Y.; Edith L. Brown, Pa.; H. S. Brown, Pa.; S. Byrne, Jr., Pa.; T. H. Carr, N. Y.; D. H. Covert, Canada; C. C. Corbiera, Cal.; C. J. Chambers, Pa.; S. S. Crow, Mo.; J. Davenport, Pa.; A. R. Day, N. Y.; W. H. Deal, N. Y.; G. Doerbecker, Ill.; G. R. Drew, Mass.; H. J. Fleming, Pa.; H. Fischer, Ger.; L. H. Frantz, Pa.; C. E. Foster, N. H.; E. Galvis, Colombia, S. A.; W. Glading, Pa.; W. B. Gearhart, Pa.; W. C. Griffith, Pa.; G. F. A. Graf, N. Y.; C. H. Green, Del.; M. A. Greenlaw, Cal.; W. C. Gutelius, Pa.; F. E. Guteliuss, Pa.; A. J. Hamm, Mass.; J. Hartzell, O.; Mittie T. Haley, Va.; E. B. Heston, Pa.; L. Hogarth, Canada; E. Hollenback, Pa.; C. A. Hottenstein, Pa.; Alice Jarvis, Mich.; Mary Jaffe, Russia; S. Johnson, N. J.; M. W. Jennings, Pa.; A. H. Keats, Minn.; Mary E. Keyser, Pa.; G. Kumpf, Canada; H. H. Kuhn, Md.; W. H. Lancaster, Conn.; P. L. Longnecker, Pa.; M. W. Maratta, Pa.; O. J. Marcy, Pa.; Jeannie Magnin, Ger.; W. C. McCarthy, N. Y.; G. S. McDowell, Pa.; J. E. Mitinger, Pa.; G. A. Miller, Pa.; E. L. Moore, Pa.; W. A. May, Canada; D. H. Morgan, O.; T. D. Morrison, Ky.; D. A. Myers, Pa.; G. Nuñez, Colombia, S. A.; J. C. Nolen, Pa.; C. L.

Pearson, N. Y.; R. B. Pealer, Pa.; J. R. Powell, N. Y.; Pauline Prime, N. Y.; R. Ramos, Cuba; S. Rankin, Pa.; W. A. Robb, Pa.; J. Restrepo, Colombia, S. A.; J. C. Reynolds, Pa.; E. C. Rice, Pa.; O. Ros, Cuba; J. H. Ross, Mo.; J. W. Ross, Pa.; W. J. Roe, Canada; J. H. Russell, Pa.; W. A. Russell, Pa.; J. P. Sager, Pa.; Sophie T. Satinover, Roumania; F. W. Shephard, Wis.; I. Siqveland, Minn.; E. M. Slonaker, Pa.; J. H. Slaughter, N. J.; M. W. Snow, Utah; O. W. Snow, Utah; Martha Sochatzey, Ger.; T. Stine, Pa.; M. A. Street, N. J.; C. S. Street, N. J.; E. A. Talmage, Pa.; F. W. Tate, N. Y.; L. G. Terry, N. Y.; J. Toprahanian, Turkey; J. W. Todd, Pa.; A. V. Toy, Pa.; G. A. Vandersluis, Minn.; C. E. Wade, Pa.; E. F. Wayne, Pa.; J. H. Wardlaw, Canada; G. M. Weirich, Pa.; E. C. Wiley, Pa.

OHIO COLLEGE OF DENTAL SURGERY.

THE forty-sixth annual commencement of the Ohio College of Dental Surgery, University of Cincinnati, was held at the Odeon Wednesday evening, March 9, 1892.

The graduating class numbered ninety and a striking feature was their appearance in oxford caps and gowns. The exercises passed off without a hitch, and the address by Dr. W. O. Thompson, President of Miami University, was exceptionally good.

The following are the graduates: J. R. Adair, Ky.; A. S. Ager, O.; A. L. Amann, O.; C. D. Arthur, Pa.; C. P. Balger, O.; I. P. Bell, Canada; P. A. Bereman, O.; C. S. Beyl, O.; G. A. Billow, O.; W. G. Bradford, O.; L. A. Broring, O.; H. L. Brown, Ill.; F. D. Burnham, O.; J. C. Cavagna, O.; H. M. Chaney, O.; G. A. Chapman, Wash.; C. C. Cherryholmes, Neb.; J. B. Cochran, Ky.; C. A. Cole, O.; J. L. Conn, Kan.; N. S. Cox, Ind.; R. L. Criswell, W. Va.; H. J. Custer, O.; Miss H. A. Dobell, Ind.; E. P. Eddy, O.; W. B. Fahnestock, O.; P. R. Feigle, Ky.; O. M. Flinn, Ind.; E. B. Greenlee, O.; A. Hall, Canada; E. R. Hall, O.; F. P. Hamilton, O.; C. V. Hargitt, O.; H. Haupt, Ger.; H. T. Hawkins, O.; L. C. Hill, O.; H. A. Holmes, Mich.; C. J. Howe, Pa.; H. L. Jensen, La.; A. H. Johnson, Mo.; D. S. Johnson, Pa.; A. J. Kimm, Ind.; A. F. Knapp, N. Y.; H. C. Le Beau, O.; R. F. Lilly, O.; G. Love, O.; W. Marquart, O.; W. H. McAdow, O.; S. H. McCleery, Pa.; L. E. Menuez, O.; C. W. Mills, O.; G. C. Minturn, O.; L. D. Monks, Pa.; G. E.

Moore, Canada; H. S. Moore, O.; M. A. Morey, Mich.; E. P. Nugent, Kan.; D. C. Patterson, Ky.; E. A. Peebles, O.; K. S. Perry, Pa.; R. G. Pinney, Mo.; W. N. Priddy, Kan.; W. A. Pride, O.; H. W. Radcliff, Wis.; F. B. Rees, O.; O. T. Robertson, O.; J. H. Robinson, Canada; E. L. Ross, O.; D. U. Ruegsegger, O.; R. Schmid, Switz.; A. E. Sexton, Ind.; C. W. Solders, O.; T. H. Speece, O.; H. M. Smith, Minn.; C. W. St. Clair, O.; J. B. Stewart, O.; W. H. Tenney, O.; C. E. Townley, Pa.; J. A. Turner, O.; R. L. H. Turner, Mo.; F. M. Van Buskirk, O.; H. F. Vandervort, O.; T. C. White, O.; J. C. Wilde, Jr., Mich.; W. E. Wilkinson, O.; E. Williams, Ind.; F. E. Willison, Mich.; Mrs. M. C. Winslow, Ind.; S. T. Yapple, O.

Prizes awarded were as follows: Gold medal for the student who shall pass the best general examination, awarded to H. J. Custer.

Gold medal for best student in operative infirmary, awarded to Homer T. Hawkins.

Gold medal for best examination in mechanical infirmary, awarded to George C. Minturn.

Silver medal for best examination in chemistry and materia medica, awarded to Garrett A. Billow.

Silver medal for best examination in physiology and general pathology, awarded to J. H. Robinson.

Silver medal for best examination in operative dentistry and special pathology, awarded to H. McCleery.

Silver medal for best examination in mechanical dentistry and metallurgy, awarded to W. B. Fahnestock.

Silver medal for best examination in anatomy and oral surgery, awarded to T. C. White.

As the prize winners came on the stage they were loudly cheered by the multitude. The class gave J. R. Dixon, the janitor of the college, a big, fat bag full of "wherewithall." The whole affair was a grand success.

DENTAL DEPARTMENT, HOMOEOPATHIC HOSPITAL MEDICAL COLLEGE.

THE first annual commencement of this college was held at Association Hall, Cleveland, on Tuesday evening, March 22nd. Matriculates for the year 15. Those who received the degree of

D.D.S. were students who had taken one course at other colleges. Beginning with the next term the course will be three years of six months each instead of two. The graduates were as follows: G. E. Bishop, O.; C. S. Kelsey, O.; J. M. Clyne, M.D., O.; C. S. Geer, M.D., O.; W. E. Root, O.; P. W. Murton, Canada.

MISSOURI DENTAL COLLEGE.

THE twenty-sixth annual commencement of the Dental Department of Washington University, was held in Memorial Hall, St. Louis, on the evening of March 10th, 1892.

Chancellor Chaplin of the university conferred the degree of Doctor of Dental Medicine upon the following graduates:

F. H. Achelpohl, Mo.; G. W. Applegate, Mo.; O. W. Bedell, O.; J. L. Bridgford, Mo.; O. F. Burton, Mo.; H. F. Cassell, Mo.; I. B. Coil, Mo.; C. C. Cowdery, O.; W. G. Cox, Mo.; W. G. Goodrich, Mo.; L. E. Gordon, Ill.; C. G. Hampton, Mo.; R. J. Hart, Wis.; T. D. Head, Mo.; E. M. Hurd, Neb.; W. P. English, Mo.; S. Jacoby, Mo.; W. Kalbfleisch, Ill.; A. Lambert, Ill.; A. N. Milster, Mo.; O. Mallinckrodt, Mo.; A. T. Moser, Mo.; C. Muetze, Mo.; O. H. Manhard, Mo.; H. F. Naumann, Mo.; J. L. Perry, Ill.; W. L. Pruett, Mo.; W. F. Schwaner, Ia.; E. Schaer, Switzerland; T. Trotter, Mo.; W. G. Teel, Va.; H. G. G. Van Aller, Ger.; F. F. Worthen, Ill.

Prof. Wm. Townsend Porter delivered the address to the class.

Prizes were awarded as follows:

St. Louis Dental Society Prize, a Gold Medal, for best general examination, to Dr. Orion W. Bedell, Ohio.

J. W. Wick, Prize, Twenty-five Dollars in Gold, for second best examination, to Dr. Everett M. Hurd, Neb.

The S. S. White Dental Mfg. Co.'s Prize, a set of Varney Pluggers, to student excelling in operative dentistry, to Dr. Orion W. Bedell, Ohio.

The John Rowan Dental Depot Prize, Bonwill Engine Mal. let No. 2, for second best in operative dentistry, to Dr. Frederick H. Achelpohl, Mo.

The St. Louis Dental Mfg. Co.'s Prize, a Laboratory Lathe, for best set artificial teeth, to Joseph L. Bridgford, Mo.

Seventy-seven matriculates, thirty-three graduates.

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CONTRIBUTIONS.

PENTAL—A NEW ANÆSTHETIC.*

BY O. N. HEISE, M.D., D.D.S., CINCINNATI, O.

CALLED a new anæsthetic, is, after all, only a new name applied by Prof. J. V. Mering to tri-methyl-ethylene, having the chemical formula of C_5H_{10} , and is a tertiary amylene obtained by heating amylene hydrate in the presence of acids.

Pental, the present amylene, was made upon the suggestion of Prof. V. Mering by the chemical firm of C. A. Kahlbaum in Berlin. It is a colorless liquid, of a low specific gravity (0.6783) with a boiling point of 38° C. (100.4) insoluble in water, but miscible in all proportions with alcohol, ether and chloroform, burns with a luminous flame, and is highly inflammable, is easily inhaled without irritating the mucous membrane of the mouth and respiratory passages in the least (being very volatile, like chloride of ethyl, it often forms small crystals of ice on the inhaling mask, but is not decomposed on exposure to light or air). It was

*Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.
A *résumé* of the researches of Prof. Hollaender, of Halle.

used to some extent during the year of 1856 and 1857. After 1857 we have little or nothing of note to add in regard to its use as an anæsthetic. Only Pfefferman refers to it in his book of 1862, entitled, "Eine Fassliche Darstellung der gesammten zahnheilkunde." (Comprehensive treatise of Dental Science). In it he makes the statement "that he has given it some thousand times," without, however, mentioning how and where he obtained it, neither describing its peculiarities as an anæsthetic or giving any of his personal experience with its use. Since there is no further notice of it to be found in any of the medical or scientific journals after the year of 1858, it is inferred that for want of a good definite, chemical article, the use of it was discontinued.

Pental was first made by Cahours, by distilling amyl-alcohol with zinc chloride, which, however, yields an indifferent, indefinite compound amylen; containing a number of foreign substances, contaminated besides with amyl-alcohol, all these products evolve dangerous, suffocating vapors, with a boiling point varying from 28° C. to 75° C., besides having a very bad odor, resembling that of decaying cabbage (or cat urine). It was first described by Ballard in the year of 1844. While Snow was the first to mention its anæsthetic properties in 1856 for the extraction of teeth, and it is a credit (for which we may well be proud) to the dental profession, that one of its members should be the first to apply it for the relief of pain in the extraction of teeth. Such was not only the case with the oldest anæsthetic, namely, nitrous oxide, but with several of the succeeding ones, as ether, bromide of ethyl, ethyl chloride, and others; and now pental is brought to our notice through the same source. It not only having been FIRST used as an anæsthetic in dental operations by Snow in 1856, but in being again brought to the notice of the profession for that purpose, by a man foremost in our ranks, namely, Prof. Hollaender of Halle, who is quite enthusiastic in regard to its use, and from whose published reports of the same, in the "Therapeutische Monatshefte," I have taken this meagre resumé. As an anæsthetic for minor operations, as well as more prolonged ones, he not only considers it quite safe, but surpassing all others. For dental operations it not only equals nitrous oxide in its rapidity of action and safety, but goes ahead of it in its more prolonged action, enabling us to take more time in the performance of operations, having no unpleasant side or after effects.

Narcosis is produced in a gradual way without any untoward symptoms, the pulse rate being slightly increased in the very beginning, but soon returning to its normal state again, and having no effect on respiration, corneal reflex being retained for a considerable time. In some cases whether they inhale the pental with the eyes open or shut, the pupil is either contracted or dilated and stare at the operator with wide open eyes, without, however, being conscious or sensible to pain; and if narcosis is not too deep will open their mouths when shut if commanded to do so. Spasmodic contraction of muscles, as those of mastication, as observed with nitrous oxide or bromide of ethyl, are rarely if ever noticed, and if so, will soon yield by delaying the operation for a few moments. The regaining of consciousness is as gradual as the induction of narcosis was. During the anæsthesia or after, is there any nausea, oppression of the chest or headache. But the feeling of well being is something that astonishes us; in fact, it is related by Prof. Hollaender that "patients who were not feeling well or suffering with headaches (and for that reason wanted to defer taking the pental), declared after taking it that they were feeling much better and the headache had disappeared."

The stage of exhilaration as noticed in other anæsthetics, is very seldom present, and if so, is of such a pleasant nature as to induce laughter, and Hollaender states that "it could well be called the laughing ether." Patients can be kept under its effects for sometime without any evil consequences. But for operations in the mouth it must necessarily be discontinued as soon as we begin operating; and as the sitting posture is the usual one for these operations, it is not wise or prudent to unnecessarily prolong the condition. Its effects do not seem to be lessened by frequently repeated administrations, but to the contrary, the second one is more easily induced. In the main, it may be said to differ from chloroform, in that it acts more promptly, has no evil side or after effects. From bromide of ethyl, that it is somewhat slower in its action, but much more lasting in its effects and can be prolonged as it may be deemed necessary. It differing from nitrous oxide, in that its effects are more prolonged and can be kept up for sometime, being free from any unpleasant effects, and safe in every respect; its safety no doubt, being due to the fact of its being free from any of the halogens.

Pental after being taken up by the blood, is probably split up into carbonic acid gas and water (H_2O), two substances (as Hollaender puts it) which can in no wise act harmfully. One of its objections might be its peculiar odor, resembling that of oil of mustard, but being so volatile, it is soon dissipated and of little consequence. The main drawback to its general employment will be its present high price (\$6 for 1 kilo—2 lbs., 8 ozs.), but with the modified Junkers' inhaler, it is stated that 1 kilo is enough for about fifty administrations, some of them even being more or less prolonged. Method of administration about the same as that for ether, or better, by means of a modified Junkers' inhaler.

Pental being so volatile, that if the ordinary methods are pursued it takes much longer to induce the narcotic condition, for the reason that too much of it is lost, also making it more expensive. For short minor operations, as the extraction of two to four teeth, is not necessary to bring about deep narcosis as it produces insensibility in its very first stage. Its full anæsthetic effects are brought about in from three to five minutes, lasting four to five minutes. As to the initial signs of pental anæsthesia there are really none to be spoken of as being definite and pronounced, as there is hardly any change of expression except the occasional stare of the wide open eyes, the color of the face remaining the same; corneal reflex being retained for some time. But the indifference of the patient, with the relaxation of the muscles, and the apparent resemblance to the normal sleep, are a sufficient guide to show that the patient is under its effects, and that we can safely begin with the operation without hurrying ourselves as we are obliged to do with nitrous oxide.

Prof. Hollaender sums up his experience with pental as follows: "That we have in it one of the safest, surest and most pleasant anæsthetic as yet brought before the profession." Surpassing all others in his estimation. Having been given many hundreds of times, even by persons not familiar with its action or influence on the system, without producing any evil consequences and always acting satisfactorily, having had no effect on the system in regard to the production of sugar in the urine, he having paid especial attention to that point. In conclusion, I would state, that just in proportion as we treat the mouth and teeth from a medical standpoint and get away from the mere mechan-

ical idea of dentistry and look upon the mouth as a whole and not as composed of so many individual teeth, treating and filling a few of them and leaving the balance of the mouth in a deplorable condition, which, I am sorry to say, is so frequently done (even by men in the front ranks of our profession), and as we come to consider the adjacent parts as rightfully belonging to our specialty, just in that proportion will we make use of anæsthetics more and more; and what a blessing to suffering humanity if the favorable reports in regard to pental (by such eminent men as Profs. Hollaender and J. V. Mering) should be confirmed by others.

NOTE.—Since reading this *résumé*, I have given the pental a number of times, with the most gratifying results, fully bearing out all the statements made and claimed for it.—H.

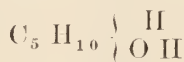
DISCUSSION.

DR. CASSIDY: I sincerely hope this new anæsthetic, pental, will prove a safer and in every way a better one than those we already know. It is certainly an improvement in point of odor at least, on what was known as amylene, which was used for the same purpose some forty years ago.

According to Dr. Heise's excellent paper, the formula of pental is $C_5 H_{10}$; it is therefore isomeric with amylene, $C_5 H_{10}$, or isopentene; isologous with pentane, $C_5 H_{12}$, and homologous with ethylene, $C_2 H_4$, the latter also known heavy carburetted hydrogen. All these hydrocarbons are, however, regarded as being made up of groups of radicals, each radical having its own special position in the molecule, so that compounds isomeric with each other, having the same kind and number of atoms, will differ in physical, and perhaps more or less in chemical properties. For instance, amylene was prepared by the dehydrating influence of zinc chloride on amyl alcohol or fusel oil, $C_5 H_{12} O$, and pental it seems is attained by the action of acids on amylene hydrate. Now amyl alcohol and amylene hydrate have the same rude formula $C_5 H_{12} O$, but if some of the radicals of which they are composed be placed by the simplest change possible, we recognize two entirely different bodies.



Amyl alcohol.



Amylene hydrate.

If these two alcohols be acted on by the same dehydrating

agent, as either zinc chloride, sulphuric acid or phosphoric oxide, it is probable that a different product would in each case result. Nevertheless I believe that *pure* amylene and *pure* pental are one and the same.

DR. HEISE: How about the boiling point of amylene varying from 32° to 78° , while the boiling point of pental is constant at 38° ?

DR. CASSIDY: That is due solely to the purity of pental; *pure* amylene has of necessity a constant boiling point which is doubtless also 38° .

The homologous liquid hydrocarbons increase in their boiling point by about 30° for every addition of CH_2 . Consequently if there be more or less of other closely related hydrocarbons present with the one experimented with, which is generally the case, as for instance, butylene $\text{C}_4 \text{H}_8$, and hexylene $\text{C}_6 \text{H}_{12}$, which are immediately above and below amylene, respectively in the homologous series, I think I am justified in saying that such a mixture will accordingly vary in its boiling point. But any *pure* liquid free from every admixture, has, as is well known, its definite boiling point as well as its definite vapor density.

The question alluded to in the paper as to the probable decomposition of pental in the animal body, into CO_2 and $\text{H}_2 \text{O}$, it seems is not fully settled, but may be by careful examination of the excretions. My own humble opinion is, that it does not so suffer chemical change, but on the contrary, that the action of this hydrocarbon, like those of common illuminating gas, may be more in the direction of suffocation, thus preventing the escape of the normal CO_2 and the consequent increase of the latter, the natural anæsthetic within the body, thereby obtunding the nerve centers and lessening the conductivity of the sensory nerves. However, if pental does undergo decomposition in the body, as stated, the CO_2 thus formed would be retained for the time being and induce insensibility to pain, much like tying a rope around a man's neck for the same purpose.

I am satisfied that any process which will develop in the body an increased quantity or retention of CO_2 , as by rapid breathing, unusual excitement or violent exercise, like playing base ball or running to a fire, will at the same time reduce our sensibility to pain. So also with $\text{N}_2 \text{O}$ which evidently acts by superseding the iron compound in carrying O to the tissues, and

at the same time causing therein a larger amount than usual of CO_2 to be formed. The retention of the latter, the natural anæsthetic, on account of its inability to find the normal reduced iron oxide, and thus escape in the usual way, as ferran's carbonate through the venous circulation seems to me to be the ultimate cause of the anæsthesia, rather than by the immediate influence of the $\text{N}_2 \text{O}$.

It is not finding fault with pental, to assume that it does not undergo decomposition when inhaled. In fact 'tis otherwise; for if chemical changes take place by the union of its radicals with radicals other than O, there is no telling what complications might result under certain conditions.

The paper states that pental is formulated as tri-methyl ethylene,



This is, of course, the possible arrangement of the radicals in each molecule, which may be decided later on by stereo-chemistry; but with all respect to the essayist, I will say, taking the peculiar odor of pental into the question, might it not be more truthfully and simply formulated as consisting of the direct union of the two hydrocarbon radicals, allyl $\text{C}_3 \text{H}_5$ and ethyl $\text{C}_2 \text{H}_5 = \text{C}_3 \text{H}_5 - \text{C}_2 \text{H}_5$, inasmuch as allyl is the characteristic hydrocarbon radical of mustard oil?

I wish to congratulate Dr. Heise for thus introducing this new anæsthetic to us, and to say that on account of its high price it will not be, at least for the present, within the reach of advertising dentists.

DR. J. TAFT: Is there any probability of the cost of its manufacture being reduced?

DR. CASSIDY: I do not see why it should not be made at greatly cheaper rates. The olefines can be formed in various ways: by abstraction of the elements of water by dehydrating agents from amyl alcohol or fusel oil, which is quite cheap you know, or from its homologous alcohols, and by decomposition of petroleum compounds which exist in illimitable quantity in mother earth. If the demand so justifies, a comparatively cheap process of manufacture will doubtless be discovered.

A NEW OXYPHOSPHATE FOR CROWN SETTING.*

BY W. B. AMES, D.D.S., CHICAGO, ILL.

THERE are few if any processes in which chemistry is applied of which the knowledge is more empirical than of the various cement formations. The best authors do not attempt to give any definite information on the various mortars and hydraulic cements, and oxychloride of zinc is dismissed with the statement that the ingredients form a cement much used by dentists in the filling of cavities of teeth.

Of oxyphosphate of zinc I have not been able to find a reference in any work on general chemistry. Of the various oxyphosphates offered for sale, I am of the opinion, after examining a considerable number of them, that oxide of zinc is the basis and cement ingredient, other materials such as silica alumina or magnesia in combination acting only as modifiers of the plasticity before setting and the hardness after setting and do not enter into the crystals.

After an extensive series of carefully recorded experiments, I have arrived at the conclusion that a very limited number of the metallic oxides have the property of forming a cement in combination with phosphoric acid and water. The oxides of zinc, copper and mercury only have this property, according to my experiments.

The salts of mercury being so very potent for evil, as well as good, render the oxides of this metal undesirable as ingredients of cements to be used in the mouth, so that the only practical addition that I have been able to make through my experiments to the cement family is the higher oxide of copper. Of copper oxides we have the cuprous or red, and the cupric or black.

The red cuprous oxide of copper forms a cement with phosphoric acid and water, that has good working qualities, but shrinks badly in setting, lacks strength, and becomes friable with crystallization. The black cuprous oxide of copper forms with phosphoric acid and water, in proper proportions, a cement which has desirable working qualities, and a hardness and stability after crystallization which give promise of its being a valuable addi-

* Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

tion to our list of materials for use in filling cavities and the attachments of crowns and bridges. The most valuable property is the ability to use a large proportion of oxide in the mixture without hurrying the crystallization of the mass. With an unusually large proportion of oxide the crystallization is sufficiently slow to allow of thorough mixing and deliberate handling while filling a cavity or setting a crown or bridge. It is peculiar in that it retains its plasticity for an unusually long time upon a cold gloss slab, but crystallizes rapidly under the effects of the warmth of the body. While it gives plenty of time for manipulation, it hardens rapidly after the process has once commenced, and is harder in a few minutes after being placed in the mouth than is usual with oxyphosphates of zinc. The crystallization of this cement, when the proper proportion of ingredients has been used, seems to be more perfect than any of the zinc oxide cements that I have ever seen. There is a flinty-like hardness such as I have never met with in any other oxyphosphate.

If a pure oxide is used, free of metallic copper, there is no staining of the tooth material from impregnation. If metallic copper be present there is a gradual discoloration similar to that from impregnation of the tooth material from some amalgams.

There is undoubtedly a powerful antiseptic influence exerted by the cement while in the plastic state, as there is a small amount of phosphate of copper formed during the mixing, which is soluble in the free phosphoric acid of the plastic cement, but insoluble in the saliva after the crystallization has taken place; while the cement is hardening there is a distinct copper salt taste, which disappears when the crystallization is complete. This is analogous to the astringent acid taste from fresh oxyphosphate of zinc fillings, which comes from the phosphate of zinc formed in the combination.

Hot phosphoric acid will dissolve a considerable amount of the metallic oxides, and a small amount is always dissolved in the cold state. The practical application of this is, that the use of oxide of the metal whose salts are highly antiseptic, insures a considerable antiseptic influence from the cement.

Inasmuch as phosphoric acid attacks the more electro-positive metals readily, it is naturally suggested that we should be careful about using an unplated steel spatula in the mixing of oxyphosphates. If the phosphoric acid solution contains the

proper proportion of water for best crystallization with the oxide used, this proportion may be modified to a detrimental extent by the combination of a portion of the acid with the metal of the spatula. A spatula of some of the more negative metals, or a steel spatula plated with negative metal is a more sensible instrument to use than one of steel only. The ivory spatula I would not consider as preferable to steel, but one that might in this connection be practicable, but for many reasons is inferior to thoroughly plated steel.

DISCUSSION.

Questions asked :

Q. Will it retain a polished surface?

A. It takes a glossy surface. Its main disadvantage is in the color, yet it does not stain the tooth.

Q. What are points in its favor?

A. It has the advantage of remaining plastic on a cold slab for a long time, giving plenty of time to the operator; in fact, my assistant often has the cement ready before I begin to work; after it gets the influence of the warmth of the mouth it begins to crystallize and sets quickly.

Q. Is there any difference in mixing it?

A. Make it stiff.

Q. Does it mix as hard as cement?

A. About the same. You can mix it stiffer because it does not set so quickly on the slab. If mixed thin it does not set as hard.

Q. Is it adhesive?

A. It is very adhesive.

Q. Is it an irritant?

A. Not more so than oxyphosphate of zinc, as the only irritant is the phosphoric acid used.

DR. CASSIDY: It seems to me that this material is not a true chemical compound.

DR. AMES: I do not profess to say anything about the chemical part: it is my opinion that the phosphate of copper on account of its antiseptic properties should have the preference.

DR. HEISE: Is this acted upon by the saliva, and does it stain the tooth?

DR. AMES: It is insoluble in the saliva. If the pure black

oxide of copper is used there is no discoloration; I make use of it for filling children's teeth. Of course the black shows through the thin walls of the enamel, but where the pure oxide is used it does not discolor the tooth.

DR. MORRISON: Have you experimented or produced any mixture to get rid of the color? For instance, mixing both oxide of copper and oxide of zinc with the phosphoric acid?

A. The difficulty is that each oxide requires a different consisteney of phosphoric acid, but this might be found out by experience. This cement requires a larger proportion of water than any other I have ever seen and this indicates that we obtain more perfect crystallization and consequently a more enduring filling. We would not get the best working qualities from either if used in combination on account of the difference of specific gravity and crystallization of the phosphoric acid.

DR. MORRISON: I have had trouble with ordinary cement getting hard while being mixed. What is the cause of this?

DR. AMES: Too much water in the acid.

DR. H. A. SMITH: Dr. Jay has asked the question as to what cement is the best. Who knows much about it? A certain doctor told me this last summer that he made very enduring cement fillings and I asked him how he did it, and he said by taking care of the material, and through this precaution he got the best results. I think, however, that Dr. Taft put the matter about right when he once said that "the best oxyphosphate filling is only a very poor filling." We deceive our patients unless we tell them the true character of this filling. I would like to know of a good cement.

DR. WRIGHT: Dr. Smith's remarks are rather discouraging; it seems to me that Dr. Ames has made a step in advance in this direction.

DR. SMITH: It is a mistake to think that I was saying anything against Dr. Ames. His material is new; I have not yet tested it. I have great respect for Dr. Ames' ability and admire the interest he has manifested in this direction and hope he will yet be able to discover some combination that will make a permanent filling of good color.

DR. AMES: I look forward to very great improvements in cement fillings over anything we have; there is a very great difference in what I have found in the results obtained; I have

used this cement with better results than I have ever obtained from any other. It makes a much more enduring filling than oxyphosphate of zinc; where the phosphate fillings have stood only six months fillings of this cement in the same mouth have stood one and a half years. It withstands mastication better and has good edge strength. Its greatest advantage is in the setting of crowns, bridges, etc.

PRESIDENT'S ADDRESS.*

BY L. E. CUSTER, D.D.S., DAYTON, O.

THIS society meets to-day for this the forty-ninth time. Properly speaking this is the forty-eighth annual session, and two years hence will have rounded out half a century of usefulness of one of the oldest dental societies in existence. National, State and Local societies have sprung up in her territory and divided the interest, but she still exists, and on account of her age, the good she has done, and the good work she is still doing she will live for some years to come.

It is unnecessary to recall her history, and the few words in the way of an address will be concerning the fiftieth anniversary of the society in 1894.

There is a general impression that it should be celebrated in a befitting manner. We would not expect this to be a national meeting, but one characterized by a large attendance of dentists from the original territory comprised by the society, and the attendance of many of those who were once members but have since become associated elsewhere. Some may question so early an agitation of this movement, but the reader having just participated in the preparations for this meeting has a vivid impression of the importance of an early beginning in the preparations for any dental meeting.

These preparations should be begun early for many reasons. There is a peculiar interest and fascination shown where large numbers of people come together. The farmer attends the fair and circus as much for the bustle as for the peanuts and lemonade. We instinctively "follow the crowd," and when we are assured there will be a big dental meeting we always attend.

* Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

In order to invite attendance, the programme must not only be good, but must be announced beforehand, to do which requires time. The movement of all committees is slow and it requires time to arrange a definite plan of action. It requires time to secure good papers, and it is always difficult to obtain clinics and other attractive features. A good paper cannot be prepared in a day or a week, and it requires time to perfect an appliance. Many men have ideas and crude appliances which may be completed for a future meeting.

A society cannot expect to be well attended which sends out its programmes a week before the time. To have a meeting and programme announced a year previous indicates that the preparations have not only been perfected, but that each one who participates will come well prepared.

Besides the early preparation of a programme for any dental meeting, the proposed anniversary of this society comes at a time when the interest will be divided with another important meeting, the Columbian, and it behooves us to early look to the interests of this society. I do not mean to detract from the Columbian Dental Meeting, for we are all interested in its success, but on account of that meeting it will be more difficult to secure a good programme; and so if this is to be a success we must be at work. Let the interest in this society increase. Let next year's meeting be a better one than this year's and awaken a general interest in preparation for the anniversary.

We should begin the work for another reason. There is no doubt but that the World's Columbian Dental Meeting will be the best meeting we will have the opportunity of attending for some time, and the success of that meeting will make it all the more difficult to secure a good meeting of the Mississippi Valley Dental Society. The brilliancy of the Columbian meeting will outshine any similar effort following in so short a time. If it were possible it would be well for this society to take an active part in the Columbian meeting by way of presenting statistics, the literature which has developed from it, models of the most important appliances which were first shown here and all the marked improvements in dentistry which emanated from this society.

A few suggestions might be offered regarding the anniversary of this society itself, if it be decided to have such.

Let the presiding officer be one of the few patriarchs remaining whose very name will insure success. Let there be a short history gleaned from the minutes of the work done; a short report of the literature; a similar report of instruments and methods presented here. Then a programme of new papers, and by all means a good number of clinics. These papers may be presented by men of known reputation and from a distance, and the discussions opened by competent persons if we find it to be a success in this meeting which we will now proceed to.

DISCUSSION.

DR. J. TAFT: I think that the paper or address read by our president, Dr. Custer, should be discussed, as there are many points of interest in it.

DR. M. H. FLETCHER then spoke of the Columbian meeting, and of the object of the committee, which seems to be to gather together some of the points spoken of by the president; he then read the list of questions sent out to be answered by the State committees for the Columbian Dental Congress.

DR. J. TAFT: I might refer to what has been done in this work. The committee was appointed one year and a half ago for the purpose of enlisting the interest of the profession throughout the United States, and to obtain a promise from them to attend that meeting and do whatever each could do for its interest. A committee has been organized in every State and Territory in the Union, with perhaps one or two exceptions, in which I presume that the persons addressed were absent for this purpose. The question very naturally arose, What shall this committee do? The questions indicate the line of work in which these committees are at work. It is gratifying to know there is emulation among these committees. The object is two-fold. One is to arrive at the present status of the profession; if these questions are answered correctly it will give us the correct data. The other is, it will give us the opportunity to gather together material for a history of dentistry throughout the country better than has ever been before. The opportunity now occurs, and it is well that it should be taken advantage of. The question was then asked, "What shall be done with all this mass of material when brought together?" These committees consist of from one to seven persons; the chairman of each committee assigns a cer-

tain district to each of the members which he is to work up, and in which he is to ascertain the facts which will answer these questions, that is to be sent into the secretary of the committee. This you see will bring together a large mass of material, so that it will not be long before matter will have accumulated which will afford material for the preparation of a history of dentistry superior to anything heretofore obtained. At the last meeting in Chicago a committee was appointed to revise and bring it together in the proper form for publication. A synopsis will be given at the Columbian Dental Congress which will give an account of the present status.

DR. FLETCHER: There is material here in the records of this society for a very interesting report, this being the oldest society in operation in this part of the country.

DR. C. M. WRIGHT: If I understood the address of the president correctly, it was that we, as an individual society, should do something—have a small fireworks of our own—to celebrate our Semi-Centennial Anniversary. While this might be a good plan for the Columbian meeting, which we are all interested in, it seems necessary that we should do something for our own meeting.

DR. FLETCHER: I fully coincide with the suggestions of the president, as well as those of Dr. Wright.

DR. H. A. SMITH: Dr. Fletcher's remarks that we have in this town some very old literature relating to the formation of this society, I fully agree with, there are some very interesting facts connected with the organization of this society.

DR. JAY: I have some very old literature in regard to the formation of dental associations. I do not know if I have anything in regard to the Mississippi Valley Association, but if I have, will be glad to contribute it.

Dr. Fletcher moved that a committee be appointed to take this matter in hand and gather all the material possible to make the history complete. Committee appointed: Drs. Fletcher, Taft and Wright.

TWO CASES OF PERIOSTITIS OF THE UPPER JAW,
IN CLOSE RELATIONSHIP TO INFLUENZA.

BY DR. H. MOSER, HAMBURG.

THE more unusual complications, if closely related with influenza, appear quite as worthy of record and of quite as much interest as the mass of symptoms which accompanied the epidemic, and which would tend to show that it was more of a general infectious disease of the whole body. The two following cases of periostitis of the upper jaw, which I am about to describe, belong to the more unusual variety. The periosteal complication appeared on the fourth and fifth days after the first symptoms of the influenza.

In one case, that of a lady whose husband had been down with influenza for several days, the disease commenced with high fever without any shivering, with great feeling of weakness in the limbs, irritable cough and sneezing. Numerous small moist rales could be heard over the whole of the chest; no dullness could be found. On the third day, violent pains set in in the left half of the chest, more especially in the left posterior and inferior region; pleuritic dullness rapidly spread towards the front and upper portions of the chest, while the catarrhal lung symptoms rapidly decreased. During the next few days the fever reached a very high point. On the fifth day, after a sudden attack of shivering, the patient complained of pain in all the teeth of the upper jaw; the alveolar portion appeared considerably swollen, and painful to the slightest touch. The mucous membrane of the hard palate was also considerably swollen, but not very red, and just behind the front teeth a rounded swelling appeared, and increased in size till the following day, when it reached the size of half a hazel nut; fluctuation could now be easily detected in it; pressure on the nasal process also gave rise to considerable pain, especially on the right side, whereas no pain was complained of in the nasal bone. On the third day, after the shivering fit, the whole of the right half of the face over the upper maxilla, appeared considerably swollen, the left only slightly so; the swelling on the hard palate had increased, the semi-globular eminence showed distinct signs of fluctuation, but the color of the

whole of the mucous membrane of the palate was nearly normal. An incision in the tumor gave issue to a very large quantity of thick sweet pus, and the flow was increased by pressing on the face from the root of the nose towards the teeth; also by pressure on the palate behind the tumor. On the following day, I was able to feel the bone by probing through the wound. The swelling of the face went down rapidly after the abscess was opened, but the issue of pus continued uninterruptedly for another fortnight. In the left pleura posteriorly and inferiorly and the left axillary line, friction sounds can still be detected even now, that is, four weeks since the beginning of the influenza. It is only right to say that the patient had several decayed teeth, mostly on the right side of the upper jaw, but during the whole of the affection they were not painful, and no pus came from between the alveolus and the teeth.

In the second case, the patient, aged 25, was a merchant who had always enjoyed very good health. The influenza set in on the 23rd December with the usual symptoms. On the 26th, he complained of pain in the teeth of the upper jaw on the right side, no defect being noticeable in any of them; the pain was felt as far forwards as the middle line, especially in the hard palate, and spread on the 27th in an exactly similar way to the first case, over the whole of the right nasal process. Here also the whole of the face was very much swollen, and the slightest pressure over the palate and nasal process caused intense pain. On the 27th, in the evening, the right mastoid process began to be painful, the skin covering it commenced to swell, and the swelling stretched in an upward direction as far as the osseous border of the outer ear. The patient felt no pain in the ear itself, and the hearing was not affected. During the night of the 28th, the pain in the upper jaw, and especially in the mastoid process, was of so severe and thumping a character, and was accompanied with so high degree of fever, that it prevented the patient getting any sleep. During the afternoon on the 28th, a large quantity of thick creamy pus suddenly burst from out of the outer ear, the swelling of the skin and the beating in the mastoid process meanwhile rapidly disappearing.

On examining the ear it was found that the pus came from an opening in the posterior wall of the external meatus, pressure on the back of the ear causing an immediate increase in the flow.

After careful syringing the membrana tympani was found to be intact, neither reddened nor pushed forward, and no disturbance in the hearing could be detected. The swelling and tenderness of the upper jaw also decreased in a marvellous way with the flow of pus from the ear, none however, coming from the jaw.

The suppuration from the ear was very considerable till the 30th December, but from that date onward it decreased very rapidly.

During the evening of the 31st December, the patient was suddenly seized with a violent fit of shivering, followed by a feeling of intense heat, and he found that his hearing was completely lost on that side.

Intense congestion and slight protrusion of the membrane were now found, but no laceration. The hearing was only recovered after about three weeks, after repeated syringing of the outer ear, and catheterization of the Eustachian tube.

REMARKS.—In both cases, therefore, the patients who had previously enjoyed the very best of health, were seized without any apparent cause in a most sudden manner, with slight but rapidly increasing pain in the teeth, which finally extended to the whole of the upper jaw; and in the second case, added to this was the affection of the mastoid process. In both cases there was considerable swelling of the mucous membrane of the palate, resembling œdema, and without any inflammatory redness, recurring fever, shivering; and in the first case only there was an abscess of the palate, with partial exposure of the bone. I still believe that this also existed in the second case, though to a smaller degree than in the first. The profuse suppuration from the outer ear, together with the previous swelling of the skin covering the mastoid process, coupled with the intense tenderness on pressure, I look upon as signs of periostitis, which was followed by inflammation of the middle ear.

So many complications and sequelæ of influenza have been noticed latterly, that it seems most probable that these two cases, which were in close connection and relationship with influenza, were really caused by the influenza poison.

ALL SORTS.

COCAINE AND SULPHONAL are tabooed by the Ottomans, for the edict of the authorities of the Turkish Empire, by an Imperial decree, say they shall not be used.

CARE should be taken never to use the elevator for extracting an upper molar tooth, as you are almost bound to fracture the process in so doing.—*Dent. Record*.

EUROPHEN is obtained from the action of iodine on isobuthyl-orthocresol in alkaline solution. Its physiological action is apparently similar to that of iodoform, and like iodoform and aristol, it is active only when applied to moist surfaces which are able to withdraw from the remedy a certain amount of iodine in a free state.

CLEANSING THE HANDS after the use of carbolic acid is accomplished by bathing them thoroughly in alcohol and then anointing with vaseline or lanolin. If corrosive sublimate has been used, a solution of common salt should be used—1 in 50—and the hands then washed with soap and water, and finally rubbed with lanolin.—*Jour. Brit. Dent. Asso.*

TO PRESERVE HYPODERMIC SOLUTIONS.—Among the several preservatives used, perhaps the best is acetanilide, as it appears to be free from all the objections that apply to other of the preservatives heretofore used. Water saturated with acetanilide in cold solution may be used in lieu of plain water to dissolve the material to be used.—*Phar. Record*.

COTTON PELLET HOLDER.—Secure a small cigar ash cuspador, at the five cent counter, drill a hole in the side of the flaring top, hang it on a small hook inserted into the side of your bracket table and you have a convenient receptacle for waste cotton pellets. Much better than throwing them on the floor or reaching across in front of patient to deposit the pellets in spittoon.—L. P. BETHEL.

AN INGENIOUS APPARATUS FOR HEATING GUTTA-PERCHA.—It consists of a cylinder which is half full of hot water, and has a

good-sized opening at the top. A little tray is placed upon the opening, and the gutta-percha placed on it. The whole contrivance can be fixed to the shield of the spirit lamp. The cylinder is filled by means of a syringe.—Dr. ROBBINS, *Jour. Brit. Dent. Assn.*

IODIDE OF POTASH AS A CICATRIZANT.—Dr. SCHLEICH (*Le Bulletin médical*, No. 8, 1892) has found the iodide of potash to promote in an astonishing manner the cicatrization of extensive wounds. He used a 5:200 solution in adults and a 3:200 in children. Unhealthy wounds would assume a healthy appearance, and, in general, the time required for healing was greatly reduced.—*Lancet-Clinic*.

CREAM DENTIFRICE.—A preparation similar to Sheffield's Cream Dentifrice which is quite popular, may be made as follows:

Prepared chalk	-	-	-	1 ounce.
Castile soap, in fine powder	-	-	-	1 ounce.
Oil rose geranium	-	-	-	8 drops.
Carminc	-	-	-	10 grains.
Glycerine a sufficient quantity.				

Rub the chalk, soap, carmine and oil geranium thoroughly together to a fine powder, and gradually incorporate the glycerine until of the proper consistence to run into metal tubes.—*Formulary*.

MUSK PASTE (FOR WASHING THE HANDS).—

Powdered white soap	-	-	-	2 pounds.
Orris root, in fine powder	-	-	-	$\frac{1}{2}$ pound.
Starch in powder	-	-	-	$1\frac{1}{2}$ ounces.
Oil of lemon	-	-	-	$\frac{3}{4}$ ounce.
Oil of neroli	-	-	-	150 grains.
Tincture of musk	-	-	-	$1\frac{1}{2}$ fluid ounces.
Glycerin	-	-	-	12 fluid ounces.

Mix the starch and glycerin, heat with care until a jelly is formed, then add the powdered soap, orris root, and last the oils and tincture.—*Phar. Record*.

CUTTING THE FRÆNUM OF THE UPPER LIP where it interferes with the suction of an upper set of teeth. Mr. Stirling paints the frænum with a strong solution of cocaine, then after waiting

two to three minutes, lifts the lip with the fingers of the left hand, stretching the frænum, and with a pair of sharp scissors divides it with one snick. It should be cut near to the gum, keeping away from the lip. The operation causes little or no pain to the patient. The set of teeth must be finished and ready to put in, and should be worn day and night for two or three days to prevent reunion of the divided parts. Of course, before making the set of teeth, the frænum on the model should be cut all, or nearly all, away.—*Jour. Brit. Dent. Asso.*

FOR THE BETTER RETENTION OF LOWER DENTURES in flat mouths, I have found the following plan a good one: Take the impression as deep as possible on inside of jaw, each side of mouth at "heel" of impression. To better do this, build down the inner side of posterior part of cup with wax, *as far as case will allow*, from half inch to an inch, which will press tongue and soft tissues out of way of impression. If plate is now made as attachment of tissues will allow at this point, it will stay in place much better than when of usual depth. The general direction of this extra depth of plate will be outward from median line as well as downward in a great many mouths, so the plate will have to be sprung into position, which is all the better.—Dr. W. E. SWIGERT, Spencer, Ind.

THE SOAPING OF IMPRESSIONS has a tendency to soften the plaster, and when the plaster is poured into the impression the soap combines with the water and interferes with the setting of plaster, resulting in a very rough surface on which to vulcanize or make good sand casts. When metal dies are to be made, shellac casts. Experience has shown that sand will part from a shel-laced surface better than any other varnish. On the contrary, plaster will separate from a surface of gum sandarach varnish much better than any other substance; therefore, use sandarach on impressions and shellac on plaster casts for metal dies. I know many members of the profession object to the use of varnish, having in view a vague notion that it might interfere with a perfect fit. A thin coat of varnish does not measure more than the two thousandths part of an inch; therefore no practical difference could follow on such a thin basis. The flexible tissues of the dental arch will always conform to a reasonable proximation of its shape.—C. H. LAND, *Items*.

THE PRESERVATION OF HYPODERMIC-SYRINGE NEEDLES.—Having noticed in various medical journals different plans of preserving hypodermic needles from rust or at least from occlusion, I have thought that a means that has been in use by myself for the last twelve or fifteen months might be of use to the profession generally. Accidentally I found that, if the needle head was filled with unguentum petrolei and then screwed on to the barrel, the needle would be filled with the ointment and perfectly preserved for an unlimited time. All that is necessary to do when you want to use the needle is to fill the barrel with water and force out the contents of the needle, or, in case you should forget to do so or are in a hurry, you may disregard the needle-filling and proceed with the injection, as no harm can come from the subcutaneous injection of so small an amount of ointment.—DR. T. A. LANCASTER, *N. Y. Med. Jour.*

A SUBSTITUTE FOR LISTERINE.—

R	Acid benzoic	-	-	-	-	-	-	4 gr.
	Sodium baborate	-	-	-	-	-	-	1 oz., 4 gr.
	Boric acid	-	-	-	-	-	-	2 oz., 8 gr.
	Dissolve with the aid of heat in distilled							
	water	-	-	-	-	-	-	6 oz.
	Thymol	-	-	-	-	-	-	20 gr.
	Eucalyptol	-	-	-	-	-	-	3 m.
	Oil of peppermint	-	-	-	-	-	-	3 m.
	Oil of wintergreen	-	-	-	-	-	-	5 m.
	Oil of white thyme	-	-	-	-	-	-	1 m.
	Previously dissolved in alcohol (94%)	-	-	-	-	-	-	3 oz.
	Mix the two solutions, add caramel	-	-	-	-	-	-	1 m.
	Distilled water q. s. to make 1 pint.							

Let the mixture stand twenty-four hours, and finally pass through a wetted double filter.—*Formulary.*

REPAIRING.—Where a broken block is to be replaced by a new one, cut out as much rubber as possible without cutting through, make proper undercuts, etc., then fit your block between the others, and cement in position with oxyphosphate mixed thin. It is not necessary to have a perfect fit above gum. Cut a piece of heavy tin foil large enough to cover upper half of block and rubber rim—place this in position and cover with cement—mix enough cement to cover whole front of block and part of adjoin-

ing two, and hold in position till it has set. This will support the block while under pressure. You can now invest, and use plenty of rubber to force it into all interstices. After vulcanizing, you will find a nice polished front. Instead of using wax to fill up my undercuts, I fill with tissue paper moistened. This can be taken out easily after flasking.—J. E. WARD, *Items*.

ROOT FILLING.—To the solution of chloro-percha I add an equal bulk of oil of eucalyptus and oil of cassia,—the essential oils holding the gutta-percha in solution after the chloroform has to some extent evaporated. You all know how difficult it is to carry chloro-percha into canals from the rapid evaporation of the chloroform, leaving the gutta-percha sticking to the instrument rather than to the walls of the cavity. Dissolve the gutta-percha to the consistency of thick cream, dip an old Donaldson's broach into the solution, and fill not only the canal but the whole pulp-chamber. Then with a piece of unvulcanized rubber and a blunt instrument, used as a piston, force the solution of gutta-percha through the canal and fistulous opening. If there is no fistulous opening, then smear the walls of the canal with the solution, and at once carry a hard cone of gutta-percha to position. The gutta-percha which I use is pure, not that which we use for stopping, which may be gutta-percha and oxide of zinc and some other substance, but simply the pure gum dissolved in chloroform, with the essential oil added. It can be purchased at any rubber store.—DR. EDDY, *Inter*.

A WARNING.—Having recently had an educational experience in the line of an explosion, I desire space in your pages to report it.

My alcohol lamp—a large glass globe one—stood in the full sunshine on a stand, breast high, the wick tube turned toward me. On removing the cap and touching a match to it, there was an explosion that blew me half way round on my feet, throwing the burning alcohol full in my face. The shock was so great, that for an instant consciousness was lost. I never knew till that moment that I was an ambidexter, but proved it then and there, to my full satisfaction, and thus soon had the flames subdued.

The wick—a large woven one—had blown out, and struck me on the chin, and the burning alcohol had set me on fire.

Result: A severely burned and abraded chin; loss of my whiskers (Burnsides); a week's enforced idleness. This is a warning to all to keep their alcohol lamps out of the sun's rays. Had the lamp been on a level with the eyes, some oculist would probably have had a patient, and the dental profession one less practitioner. —W. H. H. BARKER, *Items*.

MANIPULATING GOLD PLIERS.—How to fill a cavity with gold without wasting so much time in getting gold from tray to mouth, I have solved in the following way, by carrying pliers in plugger's hand throughout the operation. Having the plugger in hand, in position of pen in writing, I take up pliers (which should be small and light) placing them across the palm close to fingers, points next to little finger; rivet end between plugger and thumb, *not between plugger and first finger*; hold pliers by closing over third and little fingers. This position of pliers is kept the whole plugger is in use. To pick up a piece of gold, I change plugger to between first and second fingers, at same time bring pliers to position between thumb and first finger ready to pick up the gold. After gold is carried to position in cavity reverse the instrument and pliers and plugger are in first position described. With a little practice these two instruments can be held and used as described without interfering in the least with each other. And I am sure the time saved in filling a cavity will amply pay for learning. After I have packed a piece of gold the pliers are ready to pick up another by the time hand has gone from mouth to gold tray. Learn it and be convinced. —W. E. SWIGERT, Spencer, Ind.

CLASSIFICATION OF ANTISEPTICS.—*Surgical Antiseptics*.—Agents capable of keeping sterile the exposed tissues and field of operation during the progress of a surgical performance, and of preserving afterward the asepticity of the parts operated on.

Medical Antiseptics.—Drugs used in the treatment of intestinal sepsis and fermentation, etc., and in the treatment of parasitic diseases of the skin, etc.

Pharmaceutical Antiseptics.—Agents employed in the preservation of those organic chemical solutions, etc., that are liable to undergo decomposition from the development of fermentation or growths of a fungoid nature.

1. *Surgical Antiseptics*.—Bichloride of mercury, red iodide

of mercury, carbolic acid, cresol and its combinations, creolin, lysol, naphthalin and its combinations, thymol and its combinations, salicylic acid, boric acid, eucrophen,* aristol,† iodoform, dermatol,‡ acetate of aluminum, permanganate of potassium, hydrogen dioxide, iodol.

2. *Medical Antiseptics*.—Solol, salicylic acid and its salts, nitrate of silver, creosote, naphthalin and its combinations, resorcin, bismuth and its combinations, benzoin and its combinations, eucrophen, aristol, iodoform, dermatol, camphor, sodium sulphite, zinc sulphite, potassium, sulphite, oil of cinnamon, oil of fennel, oil of peppermint, oil of wintergreen.

3. *Pharmaceutical Antiseptics*.—Salicylic acid, acetanilide, chloroform, alcohol, glycerin, chloral, boric acid.—*Phar. Record*.

* Iodo-di iso-butyl-ortho-cresol. † Di-iodo-di-thymol. ‡ Basic gallate of Bismuth.

METHOD OF CROWNING.—I was interested in Dr. Stanbrough's comprehensive paper on "Artificial Tooth-Crowns upon the Natural Roots," in the *Dental Cosmos* for January. The doctor enumerated some thirteen different methods, including one of his own, of setting crowns.

The paper suggested to me still another method which I saw used recently, in the office of Dr. D. R. Jennings, of Cleveland, Ohio. It is a modification, a *simplification*, of the method described by Dr. H. F. Maasch in the *Dental Cosmos* for March, 1889. To my mind, Dr. Jennings' plan has advantages over any method which I have yet seen, its simplicity making it preferable in ordinary practice to the Maasch crown.

Briefly described, the process is as follows: Prepare the root as usual, leveling the face of it even with or slightly below the gum. With the Gates-Glidden drills sufficiently enlarge the canal. Now, with a trephine of proper size (those with Dr. Younger's set of implantation instruments will do for most cases), sink a groove between the canal and the periphery of the root. Have the trephine large enough to bring the groove nearer the periphery than the canal. Sink the groove from a thirty-second to a sixteenth of an inch.

Now, on a mandrel of *exactly* the same size as the trephine, fashion a band, preferably of platinum, although gold will answer, sufficiently wide to be set in this groove and project slightly, say a sixteenth of an inch, above the surface. Solder

your band and set with thin cement in the groove. The projecting part will enter the hollow space of the crown. Now set the crown in the usual manner with cement, amalgam, or whatever you use.

By this method it becomes impossible for the root to split. The band must break first. The band projecting into the cement-filled space lends solidity to the whole mass, and besides that, makes an effective dam against the oral secretions getting at the cement around the pin and in the canal. I cannot imagine anything stronger than this, in the way of tooth-crowning.—J. W. VAN DOORN, *Cosmos*.

GOLD CROWNS WITH PORCELAIN FACINGS.—I propose to describe a method by which it is comparatively easy to attach a faced crown to a root, the post having been previously fixed in the latter, when for instance it is desired to crown a first bicuspid root, decayed far below the gum on its mesial, or distal aspect.

In such a case it is extremely difficult if not impossible to accurately shape the root and fit a collar unless the missing part of the stump below the gum has been restored with amalgam, and if this has to be done, it can be far more easily accomplished if the pin is already fixed, and can be made to assist in supporting the amalgam.

Supposing the post to have been fixed as far towards the palatal side of the root as possible, amalgam can be built up round it where the root is deficient. When this has set, it can be trimmed up, and the collar fitted, contoured, and cut down to the bite.

This having been done, it is ready to have the previously backed facing attached, and this is the point to which I wish to direct attention.

Instead of cutting out a somewhat rectangular portion of the collar as is usually done, the collar is cut on three sides only of the rectangle and the piece of metal thus released pushed back, the free end being towards the stump edge of the collar.

The facing is now carefully fitted, the portion of the collar being bent to accommodate it, and so as to be close against the backing.

These are next waxed together, tried in the mouth to make sure all is correct, then invested and soldered. It will be found

easy to make the solder flow between the backing and the metal covering it, and on to the sides of the collar, if the intervening spaces are filled up with gold scrap. The crown can be then finished in the usual manner.—W. M. GABRIEL, *Dent. Record*.

EDITORS' SPECIALS.

THE OHIO DENTAL LAW.

ON another page will be found the text of the law as passed by the late legislature. The committee from the Ohio State Dental Society having the measure in charge, and Senator Me Maken, who introduced the bill, are deserving of great credit for the many excellent features it contains. Only those who know the nature of the opposition to any amendment of the old law can fully appreciate what the committee has accomplished. Of course each and every one of us could frame a better law—in our minds. Even admitting that we could frame one, that is easy compared with any attempt to get it enacted.

If the law lacks anything to make it complete the committee is not to blame—they got everything possible under the circumstances. We think, however, that there will be no difficulty in getting such amendments as experience shall hereafter suggest. We would have preferred that the Board of Examiners should be appointed from names furnished the governor by the society in which the law originated. This would prevent the possible appointment of any unworthy members of the profession to fill these important positions. It would be well also to require applicants for examination to perform actual operations in the mouth.

NEW PUBLICATIONS.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1892. Edited by P. W. Williams, M. D., Secretary of Staff, assisted by a corps of thirty-two collaborators—European and American—specialists in their several departments. 644 octavo pages. Illustrated. \$2.75. E. B. Treat, Publisher, 5 Cooper Union, New York.

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to hand ; and it richly deserves and perpetuates the enviable reputation which its predecessors have made, for selection of material, accuracy of statement and great usefulness. The corps of department editors is representative in every respect. Numerous illustrations—many of which are in colors—make the “Annual” more than ever welcome to the profession, as providing, at a reasonable outlay, the handiest and best resumé of Medical Progress yet offered.

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NEW OHIO STATE DENTAL LAW.

TO AMEND SECTIONS 4404 AND 6991 OF THE REVISED STATUTES OF OHIO.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That sections 4404 and 6991 of the Revised Statutes of Ohio be so amended as to read as follows :

SEC. 4404. From and after July 4, 1892, it shall be unlawful for any person to practice dentistry in this State, unless such person shall have first obtained a certificate of qualification issued by the State Board of Dental Examiners of this State, as herein-after provided :

1. A board of dental examiners, to consist of five practicing dentists, resident in this State, is hereby created, whose duty it shall be to carry out the purposes and to enforce the provisions of this act. The members of the first board of dental examiners under the provisions of this act shall be appointed by the governor of the State on or before the first day of May, 1892. The term for which members of said board shall be appointed shall be three years, and until their successors shall be duly appointed and qualified, and no person shall be appointed for or serve to exceed two terms in succession. All vacancies in said board caused by expiration of term, or otherwise, shall be filled by the appointment of the governor of the State.

2. Said board shall have power to make reasonable rules and regulations for the purpose of carrying out and enforcing the provisions of this act. It shall choose one of its members president, and one secretary ; and shall hold two regular meetings in the city of Columbus, on the last Tuesday of May and November, in each year, and at such other times as may be deemed necessary by said board. A majority of said board shall at all times constitute a quorum thereof for the transaction of business, but a less number may adjourn from time to time. The board shall keep full minutes of all of its proceedings, and a full register of all persons licensed and certified as dentists by said board, which shall be public records, and at all reasonable times open to inspection as such. A transcript of any of the entries in such minutes and register, certified by the secretary under the seal of said

board, shall at all times and places be competent evidence of the facts therein stated. The members of the board shall have power to administer oaths, and the board shall have power to hear testimony in all matters relating to the duties imposed upon it by law.

3. Any and all persons who shall desire to practice dentistry in this State after July 4, 1892, except such persons as have been regularly since July 4, 1889, engaged in the practice of dentistry in this State, or who may hold, or may hereafter obtain diplomas from any reputable dental college, shall file application in writing with the secretary of said board of dental examiners for examination and license, and at the time of making such application shall pay to the secretary of said board a fee of ten dollars; and each applicant shall present himself before said board at its first regular meeting after filing his application for examination by said board. The examination shall be of an elementary and practical character, but sufficiently thorough to test the fitness of the applicant to practice dentistry. The examination may be written, or oral, or both, at the option of the board, and shall include the following subjects, to-wit: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, and operative, mechanical and surgical dentistry. All persons successfully passing such examinations, or who may legally hold diplomas from any reputable college of the United States, or any foreign country, or who may have been regularly since July 4, 1889, engaged in the practice of dentistry in this State, of good moral character, shall be registered and licensed by said board as dentists, and shall receive a certificate of such registration and license duly authenticated by the seal and signature of the president and secretary of said board; and in no case shall the examination fee be refunded.

4. Every person receiving such a certificate of registration and license as dentist shall, before engaging in the practice of dentistry in this State, place and retain in place while engaged in the practice of dentistry in this State, such certificate of registration and license in a conspicuous position at his place of business, in such a manner as to be easily seen and read.

5. Every person who may legally hold a diploma from any reputable dental college in the United States, or any foreign country, or who has been regularly since July 4, 1889, engaged in

the practice of dentistry in this State, shall upon application and payment of a fee of two dollars, to the secretary of said board of dental examiners, and producing satisfactory and reasonable proof of the fact that he holds such diploma, or has been so engaged in the practice of dentistry in this State since July 4, 1889, receive a certificate of registration and license to practice dentistry in this State. Every applicant for license to practice dentistry under the provisions of this section shall, in person, by mail or otherwise, produce for the inspection of the board of dental examiners his diploma, or the affidavits of himself and two freeholders stating that he has been regularly engaged in the practice of dentistry in this State, and at what place or places, since July 4, 1889; and if the board of dental examiners shall, upon inspection thereof, find that the applicant is legally qualified under the provisions of this act to practice dentistry in this State, the secretary shall, without unnecessary delay, deliver to the applicant a certificate of registration and license to practice dentistry in this State, or forward the same without expense to the board in such manner as the applicant may direct. The certificate of the secretary of said board of dental examiners, under the seal of said board, stating that any person is or is not a registered and licensed dentist, shall be *prima facie* evidence that such person is or is not entitled to practice dentistry in this State.

SEC. 6991. All persons shall be said to be practicing dentistry within the meaning of this act, who shall for a fee, salary or other reward paid, or to be paid, either to himself or to another person, perform dental operations of any kind, treat diseases or leisons of human teeth or jaws, or attempt to correct malpositions thereof. But nothing contained in this act shall be taken to apply to acts of bona fide students of dentistry done in the pursuit of clinical advantages under the direct supervision of a preceptor who is a licensed dentist in this State, or while in attendance upon a regular course of study in a reputable dental college, or to the acts of legally qualified physicians and surgeons.

1. Out of the funds coming into the possession of the board as above specified, the members of said board may each receive a compensation in the sum of five dollars for each day actually engaged in the duties of their office as such examiners; and a mileage of three cents per mile for all distance necessarily traveled in going to and coming from the meetings of the board.

Said expenses shall be paid from the fees and assessments received by the board under the provisions of this act, and no part of the salary or other expenses of the board shall ever be paid out of the State treasury. All moneys received in excess of the said per diem allowance and mileage as above provided for, shall be held by the secretary of said board as a special fund for other expenses of said board and carrying out provisions of this act, he giving such bond as the board shall from time to time direct.

2. Any person who shall violate any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction thereof may be fined not less than twenty-five dollars nor more than one hundred dollars, or be confined not less than ten days nor more than one month in the county jail, or both. All fines thus received shall be paid into the common school fund of the county in which such conviction takes place. It is hereby made the duty of the prosecuting attorney of each county in the State to prosecute every case to final judgment whenever his attention shall be called to a violation of the provisions of this act.

3. Any person who shall knowingly or falsely claim or pretend to have or hold a certificate of registration, or who shall falsely and with intent to deceive the public, claim or pretend to be a registered and licensed dentist, not being such a registered or licensed dentist, shall be deemed guilty of a misdemeanor and shall be liable to the penalties provided in this act.

4. The board of examiners created by this amended act may sue or be sued, and in all actions brought by or against it, it shall be made a party under the name of the board of dental examiners of the State of Ohio, and no suit shall abate by reason of any change in the membership of said board.

SEC. 2. Said original sections 4404 and 6991, to which this is amendatory, are hereby repealed.

SEC. 3. This act shall take effect and be in force from and after its passage.

BOARD OF DENTAL EXAMINERS.

Gov. McKINLEY has appointed the following dentists to comprise the State Board of Dental Examiners. They meet the last Tuesday in May at Columbus, O.:

C. L. Smith, Columbus.
L. E. Custer, Dayton.
G. Mollyneaux, Cincinnati.
J. E. Silcott, Washington C. D.
Grant Mitchell, Canton.

DR. JOHN ALLEN.

THE death of Dr. John Allen, on March 8, in his eighty-second year, marks the passing away from earth of one who has left a positive impression on the dental profession. His record belongs mainly to the past, but its tracings are part of the history of dentistry.

Dr. Allen was born in Broome County, N. Y., November 4, 1810. He was a descendant of Ethan Allen, of Vermont, famous in Revolutionary annals. He became the student of Dr. James Harris, in Ohio, at the age of nineteen. At the close of his pupilage he commenced his professional career in Cincinnati in 1830.

He secured a knowledge of the manufacture of porcelain teeth, and thus laid the foundation for his success in the production of what was subsequently known as "continuous-gum."

This was his most important contribution to dentistry. Others had preceded him in this investigation, but he gave the first practical formula, and cleared away many of the difficulties incident to all new inventions.

He began this work in 1846-47, and filed a caveat in the Patent Office in 1851. This was for a "fusible cement of which an artificial gum is formed applicable to artificial teeth, and by means of which they are set."

He exhibited specimens of this at the American Society of Dental Surgeons. In 1851 a patent was issued, and subsequently the contest between himself and Dr. William Hunter began, to prove priority of invention. This excited intense interest in the dental profession, and until it was settled, in 1855, by compromise, was a disturbing element.

The American Society of Dental Surgeons awarded him a gold medal in 1845, "for his invention for restoring the contour of the face."

The controversy with Dr. Hunter was one of the earliest of the patent contentions, and was practically the basis of the sub-

sequent opposition to dental patents, culminating in the present Dental Protective Association.

The difficulties attending the introduction of continuous-gum, and its original imperfect character, made its use very limited; but Dr. Allen persevered, and so far perfected it, through the introduction of platinum as a base, that it eventually became, in the estimation of many, the most satisfactory and artistic of all artificial dentures.

Dr. Allen filled a professorship for several years in the Ohio College of Dental Surgery. This he resigned on his removal to New York City in 1853.

He was interested in the establishment of the New York College of Dentistry, and remained a member of the Board of Trustees up to the time of his death.

In former years he took an active part in the proceedings of the different dental societies, rarely being absent from the sessions of the American Dental Convention and American Dental Association. It was mainly through the efforts of the late Dr. Ambler, of New York, and Dr. Allen that the American Dental Convention continued its moribund career after the formation of the American Dental Association. On the death of the former it ceased to exist as an organization.

Friday, February 19, he performed his last operation in dentistry. Going home that evening, he complained of not feeling well, and from that time he grew gradually weaker until his death.

His funeral took place at his residence, Plainfield, N. J., March 10, 1892.—*Int. Dent. Jour.*

RESOLUTIONS ON THE DEATH OF DR. I. E. SAMPSELL.

IRA E. SAMPSELL, D.D.S., was born in Cainan, O., Nov. 13th, 1857. He died March 15th, 1892, aged 34 years.

His boyhood days were spent in Columbiana county, O., and received his education in the high school. His dental education was acquired at the University of Michigan from which he graduated March 24, 1880. He began practice with his brother at Salem, O., and continued there over four years after which he was located in Elyria one year. His remaining years were busily

engaged in practice at Cleveland, O. He leaves a wife, one child, and a large following of patrons to mourn his loss.

Com.	{	Drs. J. R. BELL,
Cleveland		J. R. OWENS,
Dental Society.		W. H. WHITSLAR.

SOCIETIES.

WORLD'S COLUMBIAN DENTAL CONGRESS.

CHICAGO, ILL., AUG. 17TH TO 27TH, 1893.

MEMBERSHIP.

THE membership shall consist of legally qualified and reputable dentists (as defined in the Code of Ethics of the American and Southern Dental Association) residing in the United States, and all foreign dentists regularly qualified by the laws of the countries from which they come, and such other scientific persons as may be invited by the Committee on Invitation. Each and every member to be entitled to one copy of the transactions.

The Committee on Essay shall invite suitable persons to prepare papers for presentation to the meeting.

CODIFIED RULES.

The admission fee to the World's Columbian Dental Congress shall be fixed at ten dollars. To be collected only from residents of the United States.

EXECUTIVE COMMITTEE.

Chairman, Dr. W. W. Walker, 67 West Ninth street, New York city; Secretary, Dr. A. O. Hunt, Iowa City, Iowa; Treasurer, Dr. J. S. Marshall, Argyle Building, Chicago, Ill.; Dr. W. J. Barton, Paris, Texas; Dr. L. D. Carpenter, Atlanta, Ga.; Dr. J. Y. Crawford, Nashville, Tenn.; Dr. M. W. Foster, Baltimore, Md.; Dr. A. W. Harlan, Chicago, Ill.; Dr. H. J. McKellops, St. Louis, Mo.; Dr. Geo. W. McElhancy, Columbus, Ga.; Dr. H. B. Noble, Washington, D. C.; Dr. J. C. Storey, Dallas, Texas; Dr. L. D. Shepard, Boston, Mass.; Dr. C. S. Stockton, Newark, N. J.; Dr. J. Taft, Cincinnati, Ohio.

COMMITTEE OF CONFERENCE FOR WORLD'S CONGRESS AUXILIARY.

W. D. Miller, Berlin, Germany ; F. Busch, Berlin, Germany ; Thos. W. Evans, Paris, France ; E. Magitot, Paris, France ; G. W. Sparrock, Lima, Peru ; W. B. Macleod, Edinburgh ; A. W. W. Baker, Dublin ; Ernst Sjöberg, Stockholm, Sweden ; Charles S. Tomes, London, England ; W. H. Coffin, London, England ; W. Geo. Beers, Montreal, Canada ; H. C. Edwards, Madrid, Spain ; E. Lecaudy, Paris, France ; J. G. Van Marter, Rome, Italy ; Plattschick, Pavia, Italy ; Joseph Arkövy, Buda Pesth, Hungary ; C. Redard, Geneva, Switzerland ; W. H. Morgan, Nashville, Tenn. ; W. H. Dwinelle, New York city ; R. B. Winder, Baltimore, Md. ; Elisha G. Tucker, Boston, Mass. ; W. W. H. Thackston, Farmville, Va. ; J. B. Rich, Washington, D. C. ; J. D. White, Philadelphia, Pa. ; W. H. Eames, St. Louis, Mo. ; J. B. Patrick, Charleston, S. C. ; C. C. Knowles, San Francisco, Cal. ; F. J. S. Gorgas, Baltimore, Md. ; G. V. Black, Jacksonville, Ill. ; J. E. Garretson, Philadelphia, Pa. ; R. Finley Hunt, Washington, D. C. ; E. Bacon, Portland, Me. ; Benjamin Lord, New York city ; A. L. Northrop, New York city ; W. W. Allport, Chicago, Ill. ; W. W. Walker, New York city ; L. D. Carpenter, Atlanta, Ga. ; J. Y. Crawford, Nashville, Tenn. ; W. J. Barton, Paris, Texas ; J. Taft, Cincinnati, Ohio ; C. S. Stockton, Newark, N. J. ; L. D. Shepard, Boston, Mass. ; H. J. McKellops, St. Louis, Mo. ; A. O. Hunt, Iowa City, Iowa ; H. B. Noble, Washington, D. C. ; Geo. W. McElhaney, Columbus, Ga. ; J. C. Storey, Dallas, Texas ; M. W. Foster, Baltimore, Md. ; A. W. Harlan, Chicago, Ill. ; J. S. Marshall, Chicago, Ill.

SPECIAL COMMITTEES.

* Declined.

NO. 1. GENERAL FINANCE COMMITTEE.

Chairman, L. D. Shepard, 330 Dartmouth street, Boston, Mass. ; T. W. Brophy, 96 State street, Chicago, Ill. ; A. L. Northrop, New York city.

NO. 2. PROGRAMME COMMITTEE—Not appointed.

NO. 3. COMMITTEE ON EXHIBITS.

Chairman, Chas. Pruyn, 70 Dearborn street, Chicago, Ill. ;

Arthur E. Matteson, 3700 Cottage Grove avenue, Chicago, Ill. ;
E. M. S. Fernandez, 103 State street, Chicago, Ill.

NO. 4. COMMITTEE ON TRANSPORTATION.

Chairman, F. H. Gardiner, 126 State street, Chicago ; V. H. Jackson, 340 Lenox avenue, New York city ; George Eubank, Birmingham, Ala.

NO. 5. COMMITTEE ON RECEPTION.

Chairman, W. W. Allport, 9 Jackson street, Chicago ; W. W. H. Thackston, Farmville, Va. ; *G. H. Bently, 70 Dearborn street, Chicago ; E. M. S. Fernandez, 103 State street, Chicago ; George A. Christmann, Staats Zeitung Building, Chicago ; James Mc Manus, 32 Pratt street, Hartford, Conn. ; Elsha G. Tucker, Boston, Mass. ; John D. Thomas, 912 Walnut street, Philadelphia, Pa. ; H. J. McKellops, 2630 Washington avenue, St. Louis ; L. L. Dunbar, 500 Sutter street, San Francisco, Cal. ; V. E. Turner, Raleigh, N. C. ; Joseph, Bauer, 130 Esplanade street, New Orleans, La. ; J. F. P. Hodson, 19 West 39th street, New York city ; W. P. Dickinson, 608½ Nicollett avenue, Minneapolis, Minn. ; C. F. W. Holbrook, 34 Park street, Newark, N. J. ; W. J. Foster, 9 West Franklin street, Baltimore, Md. ; R. M. Sanger, East Orange, N. J.

NO. 6. COMMITTEE ON REGISTRATION.

Chairman, Fred A. Levy, 343 Main street, Orange, N. J. ; E. L. Clifford, 401 West Monroe street, Chicago, Ill. ; George N. West, 34 Monroe street, Chicago, Ill. ; J. Y. Crawford, Nashville, Tenn. ; C. V. Rosser, Atlanta, Ga. ; T. L. James, Fairfield, Iowa ; W. H. Funderburg, 323 Pennsylvania avenue, Pittsburgh, Pa.

NO. 7. COMMITTEE ON TRANSACTIONS—Not appointed.

NO. 8. COMMITTEE ON CONFERENCE WITH STATE AND LOCAL SOCIETIES.

Chairman, J. Taft, Cincinnati, Ohio.

List of State Committees.

Alabama—Chairman, E. S. Chisholm, Tuscaloosa ; A. Eubank, Birmingham ; Chas. P. Robinson, Mobile ; G. M. Rousseau, Montgomery.

Alaska—No reply to letters.

Arizona—Chairman, L. N. Goodrich, Phoenix; D. Pentland, Prescott; J. Hardy, Phoenix; W. Warnekross, Tombstone.

Arkansas—Chairman, M. C. Marshall, Little Rock; W. B. Pollard, Hot Springs; L. K. Land, Pine Bluff; R. D. Seals, Fort Smith; A. E. Kimmons, Fort Smith.

California—Chairman, C. L. Goddard, San Francisco; W. J. Younger, San Francisco; E. L. Townsend, Los Angeles.

Colorado—Chairman, P. T. Smith, Denver; W. E. Griswold, Denver; H. P. Kelly, Denver; R. B. Weiser, Georgetown.

Connecticut—Chairman, E. S. Gaylord, New Haven; Jas. McManus, Hartford; R. W. Browne, New London.

Delaware—Chairman, C. H. Gilpin, Middleton; C. R. Jeffers, Wilmington.

District of Columbia—Chairman, Henry C. Thompson, Washington; R. B. Donaldson, J. Hall Lewis, L. C. F. Hugo, H. M. Schooley.

Florida—Chairman, J. N. Jones, Jacksonville; James Chace, Ocala; Duff Post, Tampa; I. J. Welch, Pensacola.

Georgia—Chairman, S. B. Barfield, Macon; John H. Coyle, Thomasville; H. H. Johnson, Macon; W. C. Wardlaw, Augusta.

Idaho—Chairman, E. L. P. Ector, Moseow; John H. McCallie, Moseow; A. Boston, Lewiston.

Illinois—Chairman, W. H. Taggart, Freeport; C. N. Johnson, Chicago; J. J. Jennelle, Cairo.

Indiana—Chairman, J. B. Morrison, Indianapolis; P. G. C. Hunt, Indianapolis; S. B. Browne, Fort Wayne.

Indian Territory.—Letter returned unclaimed.

Iowa—Chairman, C. J. Peterson, Dubuque; S. C. Hatch, Sioux City; L. K. Fullerton, Waterloo.

Kansas—Chairman, L. C. Wasson, Topeka; C. E. Esterley, Lawrence; Wm. H. Shulze, Atchison.

Kentucky—Chairman, C. G. Edwards, Louisville; Chas. E. Dunn, Louisville; F. Peabody, Louisville.

Louisiana—Chairman, C. E. Kells, Jr., New Orleans; Joseph Bauer, New Orleans; Andrew G. Friedrichs, New Orleans.

Maine—Chairman, D. W. Fellows, Portland; Edmund C. Bryant, Pittsfield; Henry A. Kelly, Portland.

Maryland—Chairman, E. P. Keech, Baltimore; A. J. Volck, Baltimore; Edward Nelson, Frederick.

Massachusetts—Chairman, D. M. Clapp, Boston; Secretary,

W. H. Potter, Boston ; Eugene H. Smith, Boston ; S. G. Stevens, Boston ; D. B. Ingalls, Clinton ; R. R. Andrews, Cambridge.

Michigan—Chairman, C. S. Case, Jackson ; Geo. L. Field, Detroit ; L. F. Owen, Grand Rapids.

Minnesota—Chairman, T. E. Weeks, Minneapolis ; M. G. Jenison, Minneapolis ; C. H. Robinson, Wabasha.

Mississippi—Chairman, Morgan Adams, Sardis ; R. K. Luckie, Holly Springs ; J. D. Miles, Vicksburg ; G. B. Clements, Macon.

Missouri—Chairman, C. L. Hungerford, Kansas City ; A. H. Fuller, St. Louis ; J. D. Patterson, Kansas City.

Montana—C. S. Whitney, Miles City.

Nebraska—Chairman, H. T. King, Fremont ; A. W. Nason, Omaha ; H. C. Miller, Grand Island ; H. J. Cole, Norfolk ; I. W. Funck, Beatrice.

Nevada—Chairman, A. Chapman, Virginia City ; M. A. Greenlaw, Reno ; S. S. Southworth, Carson City.

New Hampshire—Chairman, C. W. Clements, Manchester ; G. A. Young, Concord ; Wm. Jarvis, Claremont ; W. R. Blackstone, Manchester ; C. H. Hayward, Peterborough ; B. C. Russell, Keene.

New Jersey—Chairman, S. C. G. Watkins, Mont Clair ; B. F. Luckey, Paterson ; R. M. Sanger, E. Orange ; C. A. Meeker, Newark.

New Mexico—Letter returned unclaimed.

New York—Chairman, John I. Hart, New York city ; K. C. Gibson, New York ; W. Carr, New York ; M. L. Chaim, New York ; Chas. S. Butler, Buffalo ; F. A. Remington, New York.

North Carolina—Chairman, V. E. Turner, Raleigh ; J. H. Durham, Wilmington ; J. F. Griffith, Salisbury.

North Dakota—Chairman, S. J. Hill, Fargo ; S. P. Johnson, Grand Forks ; W. O. De Puy, Bismarck ; H. S. Sowles, Wahpeton ; E. M. Pierce, Hillsboro.

Ohio—Chairman, D. R. Jennings, Cleveland ; H. F. Harvey, Cleveland ; M. H. Fletcher, Cincinnati ; L. E. Custer, Dayton ; A. F. Emminger, Columbus.

Oklahoma Territory—Chairman, D. A. Peoples, Guthrie ; G. F. Dean, Oklahoma City ; J. S. Nicholson, El Reno.

Oregon—Chairman, S. J. Barber, Portland ; E. G. Clark, Portland.

Pennsylvania—Chairman, L. A. Faught, Philadelphia; C. S. Beck, Wilkesbarre; J. A. Libbey, Pittsburgh.

Rhode Island—No reply to letters.

South Carolina—Chairman, Thos. T. Moore, Columbia; W.S. Brown, Charleston; A. P. Johnstone, Anderson; B. H. Teague, Aiken.

South Dakota—Chairman, O. M. Huestis, Aberdeen; C. W. Stutenroth, Watertown; F. W. Blomiley, Sioux Falls.

Tennessee—Chairman, H. W. Morgan, Nashville; B. S. Byrnes, Memphis; W. H. Richards, Knoxville; H. E. Beach, Clarksville.

Texas—Chairman, W. R. Clifton, Waco; G. M. Patten, Galveston; Tom Robinson, Houston; Geo. S. Staples, Sherman; T. L. Westerfield, Dallas; H. J. McBride, Tyler.

Utah—Chairman, A. S. Chapman, Salt Lake City; A. B. Dunford, Salt Lake; F. W. Baker, Ogden.

Vermont—Chairman, G. F. Cheney, St. Johnsbury; Thomas Mound, Rutland; R. M. Chase, Bethel.

Virginia—Chairman, J. Hall Moore, Richmond; W. W. H. Thackston, Farmville; Jos. R. Woodley, Norfolk; E. P. Beadles, Danville; T. H. Parramore, Hampton; D. W. Rust, Alexander.

Washington—Chairman, W. E. Burkhardt, Tacoma; F. L. Hicks, Tacoma; J. C. Grasse, Seattle.

West Virginia—Chairman, H. H. Harrison, Wheeling; Jno. H. McClure, Wheeling; H. K. Jones, Parkersburg; George I. Keener, Grafton; J. N. Mahan, Charleston.

Wisconsin—Chairman, B. G. Mareklein, Milwaukee; C. C. Chittenden, Madison; George H. McCausey, Janesville.

Wyoming—Waiting for nominations.

NO. 9. COMMITTEE ON THE HISTORY OF DENTAL LEGISLATION IN THIS AND OTHER COUNTRIES.

Chairman, William Carr, New York city; Paul Dubois, 2 Rue d'Amsterdam, Paris, France; F. Buseh, Berlin, Germany; J. H. Mummery, London, England; M. Etcheparaborda, Buenos Ayres, S. A.

NO. 10. AUDITING COMMITTEE.

Chairman, L. D. Shepard, Boston, Mass; R. R. Andrews, Cambridge, Mass; Chas. A. Meeker, Newark, N. J.

No. 11. COMMITTEE ON INVITATION.

Chairman, W. C. Barrett, 208 Franklin street, Buffalo, N. Y. ; E. T. Darby, 1513 Walnut street, Philadelphia, Pa. ; S. G. Perry, 46 West 37th street, New York city ; W. C. Wardlaw, Augusta, Ga. ; S. W. Dennis, 81 Flood Building, San Francisco, Cal. ; *Thos. H. Chandler, 161 Newberry street, Boston, Mass. ; J. D. Patterson, Kansas City, Mo.

No. 12. COMMITTEE ON MEMBERSHIP.

Chairman, Edmund Noyes, 65 Randolph street, Chicago, Ill. ; B. F. Luckey, Paterson, N. J. ; E. S. Chisholm, Tuscaloosa, Ala. ; C. M. Bailey, 28 Syndicate Block, Minneapolis, Minn. ; Dan'l N. McQuillen, 1628 Chestnut street, Philadelphia, Pa.

No. 13. COMMITTEE ON EDUCATION AND LITERARY EXHIBITS.

Chairman, J. J. R. Patrick, Bellville, Ill. ; J. Y. Crawford, Nashville, Tenn. ; A. H. Fuller, 2602 Locust street, St. Louis, Mo. ; C. A. Brackett, 102 Truro street, Newport, R. I. ; B. H. Catching, Atlanta, Ga.

No. 14. COMMITTEE ON CLINICS IN OPERATIVE DENTISTRY AND ORAL SURGERY.

Chairman, C. F. W. Bödecker, 60 East 58th street, New York city ; *J. E. Garretson, Philadelphia, Pa. ; John S. Marshall, Chicago, Ill. ; Arthur B. Freeman, Chicago, Ill. ; H. H. Schumann, Chicago, Ill. ; Henry W. Morgan, Nashville, Tenn. ; William Crenshaw, Atlanta, Ga.

No. 15. COMMITTEE ON PROSTHETIC DENTISTRY.

Chairman, S. H. Guilford, Philadelphia, Pa. ; L. P. Haskell, 211 Wabash avenue, Chicago, Ill. ; A. P. Johnstone, Anderson, S. C. ; W. N. Morrison, St. Louis, Mo. ; Fred C. Barlow, 646 Jersey avenue, Jersey City, N. J. ; J. Hall Lewis, 1309 F street, N. W., Washington, D. C. ; A. O. Hunt, Iowa City, Iowa ; R. R. Freeman, Nashville, Tenn. ; E. S. Gaylord, New Haven, Conn.

No. 16. LOCAL COMMITTEE OF ARRANGEMENTS.

Chairman, E. S. Talbot, 125 State street, Chicago, Ill. ; F. H. Gardner, 126 State street, Chicago, Ill. ; C. N. Johnson, Opera House, Building, Chicago, Ill. ; D. B. Freeman, 4000 Drexel Boul-

evard, Chicago, Ill.; H. J. McKellops, 2630 Washington avenue, St. Louis, Mo.

NO. 17. COMMITTEE ON ESSAYS.

Chairman, E. C. Kirk, 1807 Chestnut street, Philadelphia, Pa.; J. W. Wassall, Chicago, Ill.; A. H. Thompson, Topeka, Kan.; H. H. Johnson, 26 Second street, Macon, Ga.; L. G. Noel, Nashville, Tenn.

NO. 18. COMMITTEE ON HISTORY OF DENTISTRY IN THE UNITED STATES.

Chairman, J. Taft, Cincinnati, O.; Louis Jack, 1315 Locust street, Philadelphia, Pa.; F. T. Van Woert, Brooklyn, N. Y.; F. J. S. Gorgas, Baltimore, Md.; H. L. McKellops, St. Louis, Mo.; E. G. Betty, Cincinnati, O.; J. B. Patrick, Charleston, S. C.

NO. 19. COMMITTEE ON NOMENCLATURE—Not appointed.

NO. 20. COMMITTEE TO PROMOTE THE APPOINTMENT OF DENTAL SURGEONS IN THE ARMIES AND NAVIES OF THE WORLD.

Chairman, M. W. Foster, Baltimore; B. Holly Smith, Baltimore; George Cunningham, Cambridge, England; De Gallippe, Paris, France; Adolph Weil, Munich, Bavaria; *J. B. Wilmott, Toronto, Canada; Jno. E. Gievers, Amsterdam, Holland; E. De Trey, Vevey, Switzerland; O. Szigmondy, Vienna; O. Mela, Geneva, Italy; V. Haderup, Copenhagen, Denmark; O. J. Crustchow, St. Petersburg, Russia; Alex. McG. Denham, Monjitas 68½, Santiago, Chili; George B. Newland, 107 Calle Florida, Buenos Ayres.

NO. 21. COMMITTEE ON CARE OF THE TEETH OF THE POOR.

Chairman, W. J. Barton, Texas; C. A. Brackett, Newport; *G. S. Dean, San Francisco; T. D. Ingersoll, Erie, Pa.; W. M. Fisher, Dundee, Scotland.

NO. 22. COMMITTEE ON MICROSCOPY AND BACTERIOLOGY.

Chairman, R. R. Andrews, Cambridge, Mass.; M. H. Fletcher, Cincinnati, O.; W. X. Sudduth, Minneapolis, Minn.; W. D. Miller, Berlin, Germany; J. H. Mummery, London, England; D. E. Caush, Brighton, England; E. Magitot, Paris, France; M. Morgans-tern, Baden-Baden, Germany; George S. Allan, New York city.

No. 23. COMMITTEE ON PRIZE ESSAYS.

Chairman, Theo. Stanley, Kansas City, Mo.; *J. Hall Moore, Richmond, Va.; C. S. Stockton, Newark, N. J.

No. 24. EDITORIAL COMMITTEE.

Chairman, W. W. Walker, New York city; A. O. Hunt, Iowa City, Iowa; L. D. Shepard, Boston, Mass., J. Taft, Cincinnati, Ohio; J. S. Marshall, Chicago, Ill.

No. 25. NOMINATING COMMITTEE.

Chairman, W. W. Walker, New York city; A. W. Harlan, Chicago, Ill.; John S. Marshall, Chicago, Ill.

NORTHERN OHIO DENTAL ASSOCIATION.

THE thirty-third annual meeting of this society will be held at the Hollenden, Cleveland, O., on May 10, 11 and 12, 1892. The profession is cordially invited. The program prepared is as follows:

Papers.—“Syncope and Asphyxia,” Geo. H. Wilson, Cleveland, O. Discussion opened by S. B. Dewey, Cleveland, O.; Chas. Buffett, Cleveland, O. “Plastics,” J. E. Phelps, Chagrin Falls, O. Discussion opened by E. W. Poole, Cleveland, O.; J. R. Owen, Cleveland, O. “Diagnosis,” J. R. Bell, Cleveland, O. Discussion opened by F. S. Whitslar, Youngstown, O.; C. R. Butler, Cleveland, O. “Crown- and Bridge-Work,” Grant Mitchell, Canton, O. Discussion opened by J. E. Robinson, Cleveland, O.; J. F. Dougherty, Canton, O. “Chemistry as Related to Dentistry,” W. A. Siddall, Oberlin, O. Discussion opened by S. R. Pancost, Ashtabula, O.; F. H. Knowlton, Akron, O. “Infection,” H. L. Ambler, Cleveland, O. Discussion opened by F. A. Douds, Canton, O.; H. F. Harvey, Cleveland, O. “Some results of early extraction of the first permanent molar,” W. B. Conner, Akron, O. Discussion opened by J. G. Templeton, Pittsburgh, Pa.; E. J. Wayne, Sandusky, O. “Non-Cohesive Gold and Tin,” Talk by Corydon Palmer, Warren, O. “Queries,” Answered by F. S. Whitslar, Youngstown, O. All questions to be sent to Corresponding Secretary before March 1st, 1892. Voluntary Papers—“Incidents of Office Practice.” Clinics—“Gold and Tin Filling,” S. B. Dewey, Cleveland, O.; C. D. Peck, Sandusky, O. “Tin

Filling," W. H. Fowler, Painesville, O. "Treatment of Abscess (with Fistula) and Filling Root Canals," Henry Barnes, Cleveland, O. If you have anything of interest, please bring it to the meeting.

HENRY BARNES, *Sec'y*.

ILLINOIS STATE DENTAL SOCIETY.

THE twenty-eighth annual meeting of the Illinois State Dental Society will be held at Springfield, Ill., May 10-13, 1892. The State Board of Dental Examiners meet at the same time and place. The profession generally is cordially invited.

LOUIS OTTOFY, *Sec'y*,
70 Dearborn St., Chicago.

MISSOURI STATE DENTAL ASSOCIATION.

THE twenty-eighth annual meeting of this association will be held at Clinton, Mo., commencing Tuesday, July 5th, and continuing four days. Members of the profession cordially invited to be present.

WM. CONRAD, *Cor. Sec'y*,
St. Louis, Mo.

DENTAL DEPARTMENT, CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

THE commencement exercises were held at Y. M. C. A. hall on Wednesday evening, March 16, 1892, and the degree of Doctor of Dental Surgery conferred upon the following candidates:

Ernest Bragdon, M. D., James F. Clayton, B. Frank Corwin, G. W. Hoffman, James Franklin McCamant, Clifford Edwin Sibbet, William Francis Sloan, John C. Wallace, M. D., Sam. H. Wardle, Fred. G. Williams.

Thirty-four matriculates for session 1891-92.

CHICAGO DENTAL SOCIETY.

AT the annual meeting of the Chicago Dental Society held Tuesday evening, April 5, 1892, the following officers were elected for the ensuing year:

J. W. Wassall, President; Thos. L. Gilmer, 1st Vice-President; E. W. Royce, 2nd Vice-President; L. L. Davis, Rec. Secretary; Geo. J. Dennis, Cor. Secretary; E. D. Swain, Treasurer; J. H. Smyzer, Librarian; G. H. Cushing, E. Noyes, J. G. Reid, Board of Directors; A. H. Peck, B. D. Wikoff, D. M. Gallie, Board of Censors.

GEO. J. DENNIS, *Cor. Sec'y.*

BALTIMORE COLLEGE OF DENTAL SURGERY.

THE fifty-second annual commencement occurred at the Lyceum Theatre on Monday evening, March 21, 1892. The D.D.S. degree was conferred upon the following:

B. D. Altemus, Pa.; C. W. Arird, Pa.; J. N. Baker, Pa.; I. J. Beach, Md.; W. J. Beatty, Pa.; C. A. Bland, N. C.; C. W. Boucher, Md.; H. V. Bradshaw, Pa.; B. Bridgforth, Va.; B. B. Brumbaugh, Pa.; J. C. Buchanan, Pa.; W. C. Callahan, N. Y.; W. C. Carter, Mo.; F. A. Charles, Mass.; C. A. Cochel, Md.; R. S. Cole, N. C.; E. Davis, Pa.; W. C. Dawson, W. Va.; J. W. Derlin, Md.; J. S. Donaldson, D.D.S., Colo.; J. R. Donaldson, D.D.S., Colo.; H. Donnan, Pa.; B. F. Dulaney, Tex.; N. H. Ehle, Minn.; M. L. Fay, N. Y.; H. R. Fonda, Vt.; H. B. Ford, Canada; F. A. Ford, N. Y.; A. Francis, Md.; I. A. Frazer, Cal.; J. N. Giddens, Ala.; R. L. Gill, Md.; W. I. Goodwin, Canada; H. W. Graham, Pa.; A. C. Griffith, Cal.; E. Grosheintz, D.D.S., Switz'd; C. N. Guyer, Colo.; G. F. Hair, S. C.; C. E. Hamilton, Ga.; W. I. Hatch, B.A., S. C.; J. Hidalgo, Venez'a; W. S. Holbrook, N. J.; F. H. H. Jackman, Conn.; A. Jekelfalusy, Wis.; G. M. Jones, Ia.; E. P. Keerans, N. C.; C. Kenney, Conn.; F. H. Kestler, Cal.; E. T. Ketcham, Cal.; H. W. Knauff, Pa.; M. D. Kottraba, Pa.; R. M. Krebs, Pa.; J. E. La Force, Ore.; E. T. H. Leonard, Miss.; J. I. Logan, Ala.; W. S. Long, N. C.; W. L. Lowe, Pa.; H. H. Maloney, A.M., La.; E. W. Marven, Canada; J. W. Moore, Canada; S. B. Meyer, Md.; P. McCabe, Austrl'a; C. C. McCloud, La.; G. B. McFarland, E. Ind.; W. H. McGraw, Pa.; P. A. McLean, N. J.; E. MacDougall, N. Y.; J. E. Parker, Tex.; L. A. Pusey, Va.; E. K. Rainey, Ga.; L. A. Reinhart, Md.; I. L. Ritter, Pa.; R. I. Robertson, Canada; R. O. Sadler, N. C.; P. E. Sasscer, Md.; G. H. Sayre, N. Y.; A. S. Shackelford, Tex.; Z. P. Shaw, Me.; J. H. Smith, Va.; W. H. Stokes,

N. Y.; J. E. Storey, Tex.; J. T. Stuart, Ala.; F. W. Sweezy, N. Y.; W. A. Taylor, Md.; F. A. Taylor, Canada; C. H. Terry, Tex.; W. P. Terry, La.; A. J. Tillman, Miss.; E. Vasquez, Guat'a.; H. A. Truxillo, La.; W. H. Walters, Md.; T. F. Warnes, N. Y.; J. D. Whiteman, Pa.; E. L. Wilder, Vt.; B. H. Williams, Ga.; D. M. Wilson, N. Y.; C. H. Winburn, Ga.; J. I. Wolverton, N. J.; F. W. Wright, Canada; J. A. Yates, Ky.; R. I. Youngs, N. Y.; R. L. Zelenka, La.

Awarding of Prizes, Dr. Fred A. Levy, President Board of Visitors.

Operative—First Prize, J. T. Stuart.

Mechanical—First Prize, B. Bridgforth.

Bridge-Work—First Prize, J. E. Parker.

Essay on Orthodontia—First Prize, F. H. Jackman.

Matriculates for the session, 181.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

SOUTHWESTERN OHIO DENTAL SOCIETY meets in Washington C. H., Tuesday, 10 A. M., May 17, 1892.

DR. L. E. CUSTER, of Dayton, O., leaves May 22 for a bicycle tour through Great Britain and the continent. He will be gone about three months.

THE OHIO DENTAL COLLEGE graduating class appeared at the recent commencement in caps and gowns. The Indiana Dental College, we believe, was the first to adopt the dress.

WE DOUBT IT.—Senator Palmer, of Illinois, who confesses that he has chewed tobacco since he was a boy, tells an interviewer that he has never had a dentist care for his teeth, and they are still in an excellent state of preservation.

THE CONTESTED WILL CASE of the late Dr. Calvin R. Bradley, of Dayton, Ohio, has been settled by a jury. The will is sustained, and it took the jury only fifteen minutes to decide after the lawyers were through with the evidence and arguments. The sum of money involved is considerable.

WHY DENTAL LAWS DO NOT PASS.—“Perhaps the non graduates of our profession exert a good deal of influence when it comes to matters of legislation. . . . I had an experience in New York State, a number of years ago, which illustrates the matter. I was not a graduate in dentistry then. I knew that measures were to be brought before the legislature there and the representative from our district was one of my patients. He came into my office one day and I extracted a tooth for him without pay and without

'payin',' and when he got out of the chair he said, 'Doctor, if there is anything you want in Albany any time let me hear from you.' He took the side of the measure I advised.—R. B. TULLER in *Dental Review*.

OUGHT TO BE KICKED OUT.—I don't believe there is a dentist who is not informed and who does not try to inform himself who can be a christian; an uninformed dentist I regard as a sinner; a man that doesn't want to improve himself is worse than a sinner; he ought to be kicked out of the profession.—DR. MILAM in *So. Dental Journal*.

THE KICKER.—"I admire the kicker. I admire him even when he theoretically kicks me. I have long held that the man who undertakes to walk through this world with meek and humble spirit will get regularly flattened out and broken in two at least once a month. On the contrary, who ever saw a chronic kicker who didn't live on the fat of the land and have a front seat everywhere?"—*Exchange*.

THE ISAAC KNAPP DENTAL COTERIE.—Prof. Jonathan Taft, at the head of the Dental Department of the University of Michigan, and one of America's most honored dentists and authors, was given a reception April 15th by the Isaac Knapp Dental Coterie at the residence of its president, Dr. Shryock.

Professor Taft's address on the occasion was what might be expected from one so distinguished. Of the seventeen dentists in the city, only eight are members of the above society. These meet fortnightly for improvement, and to keep pace with all approved modern methods in both American and European dentistry.

The invitations to last night's entertainment were extended to every registered dentist in the city. A number from adjoining towns were present, and many regrets from others received.—*Ft. Wayne paper*.

PROFESSIONAL ADVERTISING—THE NEWSPAPER VIEW OF IT.—The idea that doctors and lawyers should not advertise has nothing behind it except sentiment and custom. The sentiment which forbids it is a beautiful one, but it has almost run its course. Lawyers who ten years ago would have frowned down the merest semblance of advertising now keep standing cards in many legal journals. Others, bolder even than these, are crowding each other in an effort to insert the same cards in the newspapers.

What good reason is there why both of these professions should not advertise, if they feel so disposed? The fact that they do not approve of it now does not make it bad. The Courts disbar no attorney for resorting to this means of increasing his business. They have too much sense. Medical societies sometimes debar doctors who do, but the number of the latter keeps on increasing. It will grow larger from year to year, not because such advertising may be an ideal thing, but because the practical arguments in its favor overbalance ten times the arguments against it.—*Philadelphia Inquirer*.

INDIA RUBBER FROM COAL TAR.—A London journal speaks favorably of what is termed the latest addition to the many products obtained from coal tar, an article described as possessing all the desirable properties of India rubber. A method has been discovered by a German chemist, it appears, by which, after the tar has been refined by means of sulphuric acid, the resid-

uum can be worked up by simple manipulation into a black mass bearing in appearance a very close resemblance to ordinary asphalt, but at the same time having the well known characteristic of elasticity possessed by India rubber. On being submitted to continuous and intense heat the material, it is said, can be decreased in bulk some 50 or 60 per cent., under which operation it acquires a great degree of hardness, but at the same time very elastic. In the original or soft state the material is a kind mineral rubber asphalt, but when dissolved in naphtha it becomes a fine water-proof varnish, suitable for forming a durable and reliable covering, especially for most textile substances.

DEATHS.—Dr. Joseph G. Cameron, Cincinnati, died Saturday, March 5, 1892, in the 65th year of his age.

“Dr. Cameron needs no eulogy on his past life other than is accorded every man who does his duty faithfully in the sight of God and man, as he strove to do it during the years of trial that marked his course as Christian, friend, neighbor and a business man. Death came after an illness of only eight days, though the severe attack of blood poisoning which lost him the index finger of his right hand last fall caused a loss of vitality never fully regained.

Few men hold a higher place in the esteem of those around them than was enjoyed by Dr. Cameron, and the universal feeling, both professionally and in the social relations of life, is one of heartfelt regret over his decease, and sympathy with his bereaved wife and family.”

Dr. Cameron left real estate appraised at \$35,000 and personality \$1,000.

Dr. D. T. Jones, of Yellow Springs, Ohio, died Monday, April 4, 1892, of hemorrhage of the lungs.

TAFT—Sunday, March 13, at 11 A. M., of pneumonia, Rebbe, only daughter of Dr. Wm. and Rebecca Taft, Cincinnati, aged 6 years.

DENTISTS CAN'T ADVERTISE IN ENGLAND.—The whole question of advertising in connection with surgical and medical practice has been revived in England by the result of a long legal battle between a dentist named Partridge and the General Medical Council. It appears that in 1878 he was arraigned for advertising, and promised that he would not do so any more, agreeing to forfeit his diploma if he did. This promise, in its full sense, he did not keep, for in 1882, having become blind, he started a Ladies' Dental Association, which he advertised extensively over his own name. The Council took action against him in 1886, and decided to strike his name off the dentists' register. He went to law about it; and Mr. Justice A. L. Smith, who was confirmed by the Court of Appeal, granted him a mandamus to compel the Council to restore his name. Then he brought an action for malicious prosecution, and failed; and again, at the end of 1887, the Council struck his name off. Hence the present action, in which first Mr. Justice Denman and then the Court of Appeal—represented by the Master of the Rolls and Lords Justices Lopes and Fry—have declared that the General Council is right. The Council is entitled, under the Dentist Act, 1878, to erase the name of any person proved to “have been guilty of infamous or disgraceful conduct in a professional respect” for a dentist to announce himself in the newspapers. The decision has provoked much vigorous and unfavorable comment.—*Daily paper.*

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CONTRIBUTIONS.

DECOLORIZATION OF THE TEETH.*

BY A. O. RAWLS, D.D.S., LEXINGTON, KY.

By way of trying to add my mite to the general fund of experience given, though not present, I wish to say a very few words upon the subject of colorization and decolorization of the dentine and enamel wherein, for the treatment of pulpless teeth, such antiseptics, stimulants, and germicides as are used, the properties of which are known to produce a change of color in the tooth substance with which it comes in contact.

It is of common experience with the older practitioner, and generally so with those of these latter days, that all preparations of iodine soluble by contact or mixture with the fluids of tooth substance will change the color of those fluids. It is also known, or *should be*, that any preparation, soluble or insoluble, in the nutrient fluids common to tooth substance will, if pumped, or even placed (in a fluid state) in the crown cavity and root canal

*Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

of a tooth, voided by hot air, spunk, bibulous paper, alcohol, or ether, of a portion of its fluid contents, will most certainly presume to occupy the vacant space, and if of any marked difference in color from the tooth will, of necessity, refract and reflect the same to observing eyes.

Terechloride of iodine and pyoktanin will each show their color in and throughout the tooth substance when used as above. Pyoktanin will show itself, either blue or yellow, in accordance with which one of the preparations is used; no matter whether the tooth is anhydrous, or only partly so, or deluged with saliva, mucus, or what not, it will fly apparently like the flash of strongest affinity, and we can hardly determine its bounds until we see its own definition. Such being the fact in so far as pyoktanin is concerned, and partly so far as the coloring properties of terechloride of iodine obtains, these articles would seem objectionable as remedial agents in the treatment of sepsis of tooth substance. Objectional only on account of their properties to maintain their color or change into that more objectional.

Now let us see if we can remedy this. In trying I only grant you my experience.

First. The pulp cavity and root canal being freed of its former occupants, and you opine from the character of the latter that the dentine needs throughout its open aspect germicidal treatment; then dry fairly well (not too dry nor too hot, for too much heat unbalances structure other than the germs) the entire canal; introduce upon the extreme point of a broach, touched in any of the volatile substances used in dentistry, a bit of, say, pyoktanin not larger than half a mustard seed as near as possible to the apex of the root; stop the crown cavity, either loosely or tight as the conditions require, in a few hours the discoloration will appear; this you wish to rid the tooth of. Remove the stopping, fill the apex of the root with cotton and some resinous solution, and you can by the use of alcohol, a very dilute solution, in water, of carbolic acid, or any of the hydrocarbons, suitable for use; wash out with broach and cotton saturated with either all discoloration. If upon the other hand you feel that the dentine is fresh, clean and free from septic contact, and you wish only to treat an open wound at the end of the root, and wish to use in such treatment either one of the discoloring agents and at the same time not discolor the tooth crown, then dry the

crown cavity and root canal thoroughly; stop end of the root temporarily, and while the tooth is dry and warm pump in to the crown and root canal carbolated ethereal solution of gum copal or sandarac, let this dry, remove the temporary stopping at end of root and proceed with treatment for root membrane, periosteum and nerve tissue at end of root.

The very natural tendency of pyoktanin is when stopped up in a tooth to pass out when it meets moisture, therefore it would proceed in the direction of the cementum and through it to the peridental membrane and be lost in the circulation, but the animal fluids escaping from the cementum are slow to reach the crown of the tooth and ere long become clogged up so that moisture cannot pass and carry back the substance of discoloration, hence it is better to wash it out before stopping the crown cavity. In some cases pulpless teeth thus treated will, if thoroughly freed from the stains of pyoktanin, improve in color becoming lighter and clearer. In choice of color I prefer the yellow preparation of E. Mercks.

“ON EDGE.”*

BY C. M. WRIGHT, D.D.S., CINCINNATI, O.

I HAVE made a mistake in the selection of a subject, or title. The head-lines and the subject matter of my paper may not bear that harmonious correspondence one with the other which is so gratifying to the logically inclined, scientific mind. The mistake happened in this way. When I received an invitation from Dr. Custer “to read a paper” at the meeting, I accepted with a modest hyperæmia of the peripheral capillaries of my face and head. When I received a second invitation to *name* the paper, the unborn product of a secretion from my cortex cerebri—before I knew its sex or condition—when I had only promised to do my best with the means I had, to cause a paper to be born, I naturally felt as though I were “on edge,” and I selected the subject nearest to my physical and mental condition.

I could so much more easily have written on some other subject. I might have called my paper “Confessions.” Not of an opium eater for De Quincy has made that a classic in English;

* Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

nor of a religious fanatic, who argues the point of whether life is worth living, for Tolstoi has been before me in Russian or French and is living up to his doctrines. I should not have written the confessions of a trichloride of gold patient, the newspapers have done and are doing that. My confessions would have been simply the confessions of a dentist—an every-day dentist—a— “dollar a day” dentist (I have left a space before the dollar so that it can be read a 20 dollar a day or a 100 dollar a day dentist as you please). A dentist, I mean who is occupied as we all are, in the “demn.tion grind” of life, such as Mantalini found at the mangle. A dentist who, when he dies can expect no greater praise, no more picturesque epitaph than the following:

“ He never gained immortal fame,
Nor conquered earthly ills,
But men mourn for him just the same,
—He always paid his bills.”

The confessions of such a man I might have written, and you, my dear hearers, and you, the unnumbered host of readers who would perhaps see my confessions in print in the dental journals, might have had the opportunity of seeking solitude, to relieve the discharge of feeling and the flushings of lacrymal ducts that might follow. And the discharge and the flushings would do you good. You are all “on edge.” You live in a continual strain; straining to suppress within the bounds of law and order, the law and order established by society and called politeness—your natural feelings. You have, all day long in your offices, the disagreeable tingling sensations perceptibly creeping up every afferent nerve and down every efferent nerve in your bodies, the sensation defined by Bacon as resulting from bringing an acid in contact with the enamel of the teeth. You are conscious during every minute which you spend in your operating rooms, that you are on edge, on *the* edge of a yawning precipice. The precipice is not there any more than the acid is in contact with your enamel, but the *sensation* is, and you suppress it and maintain an outward appearance of placid dignity, or interested kindness, or tender sympathy. You are like the Spartan youths, who are reported to have looked steadily and with smiling denial on their faces, into the accusers eyes, while the foxes concealed in their bosoms were gnawing at their vitals.

Why have we these foxes gnawing at our vitals? Why are

our "nerves" always "on edge?" It is because that for from eight to ten hours each day we are engaged in the performance of delicate and trying surgical operations. It is because some of our surgical operations require so much time and endurance that our nerve-centres become exhausted from the long continued stimulation. It is because we must give so much of what psychologists define as *artificial attention*, which is a very different article from the spontaneous attention of the child or the savage. This sort of attention is a cultivated effort on the part of the will, and is a direct exercise of nervous force with a complicated inhibitory strain on a large number of motor nerves. It is because we have no diastolic recuperation. The systolic period is too long; it lasts all day. The general surgeon who begins with his knives and saws at 8 o'clock *every* morning and employs them upon one patient after another without rest until 5 o'clock in the afternoon is on edge, just as we are. The mechanic who uses saws and knives in a shop, works 10 hours each day with comparative ease and does not understand what being "on edge" means. The dentist who works at the bench in his laboratory, no matter how delicate and skill demanding his labor may be, is not "on edge." He enjoys labor as an artist can, and he might solder and carve 12 hours a day and keep it up for fifty years without suffering nervous strain or exhaustion. But the man who *adapts the appliance* to the *living tissues* is engaged in an entirely different way. He is engaged in surgery, and surgery is, *per se*, an excitor of nerve-centre activity. Mechanical operations are not. Surgery implies manual operations, but it also implies healing, and our title of D. D. S. implies the healing by manual operations certain lesions of the living body. The driving of a threaded needle through the lips of a gaping wound and taking stitches to bring these lips together; afterwards when living matter has succeeded in sealing the sides of the wound together by a sticky exudate and has sent out cells and buds to repair and regenerate the severed tissue and reinstate the circulation of blood through repaired blood-vessels,—to remove the stitches is a very simple surgical operation. As far as the manual operation is concerned it is very much like the tailor's work on a rent in one's garment and the taking out of basting threads. But the tailor can sit cross-legged on his table the live long day, and can sing and whistle and never suspect that he has nerves or nerve centres,

while the surgeon expends in fifteen minutes nervous force enough to run an entire tailoring establishment. The surgeon is on edge, delicately sharpened, keenly ground to a cutting edge, and the tailor is like a blunt hammer in comparison. There is no edge to be destroyed. The dental surgeon has the edge sharpened like a razor and yet he hacks away for eight continuous hours each day and expects to recuperate sufficiently each night. I need not detail the thousand and one things, tough things, hard things, that come in contact with this fine edge every hour in our daily practice. You who have been in practice for ten years and who started in with a great supply of elasticity and resiliency, have not begun to suffer much. You rather enjoy the kicking against the pricks. You who have gone around the track for another ten years and reckon your dental experience as a twenty year one, begin to suspect that your work in life is extra hard. You who have had thirty years of this mill of the gods, feel dead certain that it "grinds exceedingly small." You are the men whose long and broad experience has taught you to entertain a colossal respect for the nervous system of man. You are the men who study with the deepest personal interest the physiology of nervous matter, and wonder at the correlated force that presides over every contraction of a muscle cell, that grasps with an intelligent hand every blood-vessel, ready to respond in an instant to the slightest call for an increase of the life giving fluid to any tissue or organ or part; that maintains with never ceasing oscillations the heat producing and the heat reducing conditions of the tissues, so that the temperature is regulated more perfectly than by the delicate apparatus on the vulcanizers in our laboratories; that adjusts the supply to the demand for nourishment from every remote cell in the organism; this nervous system with its centres keenly sensitive to everything within and without the body and ready to respond to every impression. You are the men who appreciate that this sensitive system cannot last forever and that you are driving it to its utmost capacity in your daily work. You have held a tight rein upon these centres for thirty years in your daily and hourly operations in order that you might (unconsciously though it may be) influence by *suggestion* the nervous centres of all classes and conditions of minds as presented by your patients. In one day you will exercise this suggestion at the expense of your own

stock of physiological force on old men and women, and boys and young girls, and children and hysterical mothers. After each case, be it more or less trying, you bob up serenely and begin again the struggle. Your calm face does not tell the secret of your palpitating heart and quivering nerves. Perhaps some of my hearers do not quite believe in the truth of the picture presented here. They may point to the pioneers in our profession who are still vigorous, intellectually and physically. We of Cincinnati well remember our departed friend, Dr. A. Berry, an octogenarian, and a man of unconquerable vitality. He it was who pooh-pooed the idea of men becoming exhausted by eight or ten hours a day, and boasted that sixteen hours per day would be a fair day's work for a dental surgeon. He laughed to scorn a young man who complained of his *nerves*. But Dr. Berry was an exception to the rule among men. He had his own methods of relief from the strain of daily practice. I have studied him well. Firstly, Dr. Berry did a large share of laboratory work himself. This is a relief from surgery. Secondly, if I may be permitted to say, with deep respect for his memory and as a friend and admirer, Dr. Berry constantly found vent for his overcharged nerve centres by vigorous invectives against what he considered wrongs and abuses in other men's diet and morals and religious doctrines. Why; the situation of our Garfield monument in the middle of Race street must have added months if not years to Dr. Berry's nervous activity; for it furnished to him a constant escape valve for the compressed and surcharged nervous excitations caused by daily practice. His ever ready and picturesquely expressed anger at the idiocy of people who would permit a monument to be placed in the middle of a thoroughfare to frighten horses, certainly acted exactly like a steam valve well set to blow off when the pressure reached a certain point, and the boiler is saved from strain.

The nervous system is so delicately *en rapport* with the entire world about us, and the most minute particle of matter within us, that the advanced students of physiology feel like babes playing on the sand with an unknown ocean of knowledge spread out before them, and just as the pebble that is cast into this ocean by the child on the shore causes waves to circle about it and widen out to eternity, so every impression upon the nerve centres may cause ripples that will be felt in generations yet to

come. Every time a child is spanked a wave of trouble washes the control centres and the reflexes set every cell or every spoke of living matter "on edge," and nutrition, function, and development is affected, favorably or unfavorably. How do we know that the faults that we call congenital, let us say even in the enamel of the adult tooth, the weak spots that cannot resist the invaders, the soil that proves suitable for pathogenetic micro-organisms were not made predisposing causes by faults in nutrition, and that these faults in nutrition were owing to nervous impressions excited by pain from the concussion of the mother's hand upon a sensitive nerve, situated at a very remote distance from the enamel-forming organ of the child? Have you ever thought upon this aspect? Richter asks, "Have you—learned men, ever stopped to calculate the effect of a mother's scream on the character of the unborn child?" and I ask, Have you wise dentists, ever stopped to calculate that the defective spots on the enamel might have been caused by the spankings received in babyhood? Es ist nicht unmöglich.

DISCUSSION.

DR. F. A. HUNTER: In the moment of weakness when I consented to open the discussion on Dr. Wright's paper, I must have been "on edge." To open a discussion on one of Wright's papers is a difficult matter, he usually goes so thoroughly into the subject that he leaves nothing for anybody else to say. The only escape left me is to differ from him. I cannot differ in all points, but in some I think there is opportunity for differing. There is no doubt that a dentist in active practice is frequently worried and annoyed to a very great extent; but it is not confined alone to that profession, all have the same peculiarity; a man in any profession who is busy is necessarily "on edge." A man in actual practice in dentistry is simply in the "swim or out of it." We cannot control our practice to any considerable extent, if we have business to do we must attend to it and take the necessary annoyances and worries pertaining to it, or we shall find ourselves not in it at all. I think if we look at the generality of the men in the dental profession, men who have been in practice thirty or forty years, such men as Taft, Morrison, Smith, and myself, we shall see that they will compare favorably with men who have been busy in other professions the

same length of time. Altogether, I think Dr. Wright places too much stress upon this point.

WM. KNIGHT, M. D.: I do not know that I have any remarks to make "on edge." Dr. Wright has in a very witty manner told the truth that pertains to all professional men. I think the surgeon or physician is "on edge" just the same as the dentist.

DR. WRIGHT: Dr. Knight's remarks refer to all professions; I made a difference between dentists and those of Dr. Knight's profession. We have eight hours of continual work without the rest between times that a physician frequently has in going to and fro to visit his patients; he has to visit a patient in one end of town and another at another part of town which is not like continuous work. For instance, the office hours of the physician are the most trying of the whole day, and that is just what the dentist has all the time. I think if they had a continuation of office hours, instead of visiting, their profession would be as trying as that of the dentist. I admit that a surgeon is under a great strain when performing an operation, but the question was whether we do not have a stronger, harder strain caused by continual work.

DR. H. A. SMITH: Dr. Wright is right in many respects, when we look at the operator at the chair and consider the length of time he has to stand, there is a wide difference between his work and that of the physician who has patients at regular hours. The physician after his office hours has his recreation in getting in his carriage and going off to visit his patients. I have been in practice twenty-one years; in the first ten years of practice I did not mind it at all, but for the past five it has told on me and I have had to be careful in many things, diet, etc. We just live, as it were in a small place and work hard from morning until night and it does wear on us; it tells on me and every one who has a good practice; but it is true that we must attend to our practice if we desire to keep it. We might look at the business man, he is "on edge" being pushed with business, and if he cannot get the money to meet his demands, certainly he is "on edge." But it is no comparison with the dentist, it is the length of time that the dentist has to stand at the chair that tells on his nervous system.

DR. MORRISON: I am somewhat in the same condition as

Dr. Hunter, the ground has been so well covered by our essayist that it leaves nothing for us to say. In the Mississippi valley farther west we have the same little irritations and annoyances that seem to wear so upon the man. The only relief I think is to have something like the late Dr. Berry; we must all be cranks in some things or at least should have something outside our office to do to take off the nervousness and friction caused by continually standing at the chair; the sharp "edgedness" that Dr. Wright terms it. I have denominated this condition an electrical one. There is often a want of proper electrical balance between our patients and ourselves, and it is also aggravated and increased by the direct contact of the instrument against the moist, soft condition of the dentine. When we can manage to keep the dentine thoroughly dry, it will be found that we can in a measure restrain this electricity and be comparatively comfortable. There is an infinite dynamo in the mouth. This is noticeable when we are using rubber polishing points; patients often complain of tickling of lip or nose, which is actually the case caused from friction of the rubber point; it is just the same, to my mind, as though caused by a small dynamo.

DR. M. H. FLETCHER: It is proven beyond doubt that every organism is possessed of a certain amount of electricity, but the amount varies. Electricity is carried better by some individuals than others, and coming in contact with this class of patients, through the medium of an excavator or other instrument, we experience this feeling of being "on edge" to a greater degree. The great difficulty is in doing away with the induction currents. We have found nothing as yet to accomplish this. It does seem to me that through this medium we are in contact with this agent in spite of all we can do. When we attain a certain stage of life the tissues of the body do not repair as rapidly as they did formerly, and therefore we are not as able to withstand this influence and it tells more readily on us; yet, if we are able to control ourselves we can better control our patients. An abundant supply of fresh air and good light in the operating room is also a great aid. I think what Dr. Morrison has stated is founded upon facts and there is an opportunity for investigating and experimenting in this direction.

DR. W. N. MORRISON: Individually I have great relief from recreation. I, fortunately, possess a place in the country and fre-

quently take a run out there, freeing my mind entirely from my office and practice, and after working on the farm for one day I go back to my office feeling like a new man. There is a tendency among the profession to overwork; six or eight hours a day is long enough, and when your day's work is finished free your mind from business and play the rest of the time and you will find yourselves better off for so doing.

DR. SMITH also spoke of the necessity for some outside occupation in order to work off the nervous irritation, saying, all professional men work hard, lawyers, physicians and ministers, but the lawyer has the advantage of a long summer vacation, and who of us takes that? The minister gets a sore throat occasionally, but we have no recreation, our work is from day to day throughout the year. I question if a man does not do as well by working five hours as by ten hours per day, he can get about as much in way of fees if he is a competent man. I find great relief in reading the literature of our profession.

DR. GRAY: I agree with Dr. Smith, looking at this subject in a physiological way. Whoever heard of an athlete being troubled with nervousness, but those of sedentary habits suffer from indigestion, constipation, etc., and will naturally be cross, nervous and out of fix; whenever we defy the laws of health we must suffer the consequences. We as dentists cannot take exercise enough; we cannot expect to keep ourselves in a physiological state. If a man is confined for eight hours by his profession, let him have some dumb-bells or chest exercises and get up a perspiration, then take a quick bath and rub himself vigorously, this will rest and refresh him. Many times when I have been so nervous that I was in a quiver, I would get on my horse and gallop away, and after a long ride come back much refreshed.

DR. TAYLOR: I do not believe in the electrical theory as advanced by the gentlemen who have just spoken. I do believe, however, that if a man is earnest and honest in his work and tries to please his patients, just in that proportion is this nervous strain on the system. If you get a case where the operation is not difficult there is no particular strain, but if it is a difficult operation and you cannot get at some point you are striving to, with excavator or plugger, or you feel that the patient has but little confidence in your ability, it becomes a material strain that tells more upon dentists than upon any other professional men.

Take the surgeon for comparison. Even the operation of amputating a leg does not cause so great a strain as we experience in many operations about the mouth. In this case the surgeon realizes that his patient is under the influence of an anæsthetic and he works away without that strain that dentists experience in excavating a very sensitive cavity.

Dr. Berry has been referred to as a man of great endurance. I was twice associated with him in business and probably know his characteristics better than any other man. He was different from most of us in that he could lay down an instrument and inside of three minutes be asleep; and I have seen him drop off to sleep with a plate in one hand and file in the other, and after a few minutes he would awake greatly refreshed. We all know that sleep is nature's great restorer, and I believe that this habit had more to do with his wonderful powers of endurance and long professional life than anything else.

DISCRETION IN THE PERFORMANCE OF DENTAL OPERATIONS.*

BY F. W. SAGE, D.D.S., CINCINNATI, O.

A PROFESSOR in a certain dental college once said before his class, that a man is rather likely to discover after ten years of practice, that he knows nothing about dentistry. This statement if accepted literally, might well discourage the beginner. We take it, however, to signify that the accumulated experiences of ten years of practice bring a man to a point of view from which he very likely discovers that he has not always performed operations intelligently, that is, with regard for, or knowledge of, their probable outcome. It is a singular fact, that notwithstanding the experiences of those who have preceded us in any walk of life, may have been precisely the experiences which we come later to recognize as our own; most of us need to stumble and flounder and find out for ourselves before we arrive at the point of deriving practical benefit from the suggestions of those who tried to warn us. So much unconsciously escapes the memory of even the most devoted reader of standard text-books. So much which on the printed page appears plain and simple enough,

* Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

becomes complicated and perplexing when it confronts the student later in his everyday practice, that the wonder is that any but the most talented achieve even partial success. The tyro is from the very first skeptical as regards the statement that theory and practice are at all widely separated from each other. He cannot comprehend how it should be probable or possible to stumble in the performance, after a clear elucidation of the principles upon which any operation or course of treatment is to be performed or carried on. He is not even aware of the difficulties which have beset his instructors in determining which text-books are best adapted to the purpose of fully enlightening him. He is not conscious how futile would be his own unaided efforts to select among various text-books the particular one best calculated to yield him the information he needs. It is only after years of practice whereby he becomes practically familiar with the subject of which they treat that he acquires that facility in criticising which enables him, on turning over those books, to discover that a text-book, clear, explicit, and thorough as to necessary details, is not always to be found in his collection. Here he discovers something implied, there, something to be supplied, both of which quite escaped his notice in his earlier reading. He went out from the dental college as he supposed thoroughly equipped for practice, and now after ten years of practice, he returns to his text-books to discover a thousand things written between the lines, of which he had never dreamed.

But after all, given a young man of studious habits, quick apprehension, and added to these as by no means least in importance,—a retentive memory,—and it ought not to be recorded of him after he has had ten years of practice, that he knows nothing of dentistry. His experiences ought, during that time, to have been valuable to him chiefly as illustrations to impress still more firmly upon him what he had learned from his reading, not as instruments for the correction of mistaken apprehensions. But precisely here the difficulty arises, to-wit: that in the beginning the student does not know, nor does his instructor know infallibly, what it is that he *most needs* to know. Still more obvious is it that many fail to seize upon and improve by the teaching of the passing experience, so that being forewarned they may be forearmed against the repetition of an error. Instead of sitting down to patiently consider the cause and source

of their error, they pass it by as something not likely soon to recur in practice, promising later when leisure affords the opportunity, to give it proper attention. To men of this temperament the convenient time never comes, and they fall into the train of the non-progressives.

Discretion in the performance of operations in dental practice may be an inherent trait of character in the less skilled dentist, whereby he becomes practically equal in ability to another of finer manipulative attainments, but of uncultured or hasty judgment. Defects of judgment are more likely to characterize the man of an imitative mind than one of an inventive turn. For the inventive mind is constantly inquiring as to the why and wherefore, whereas the imitative mind turning instinctively to familiar methods, is constrained to make the best of those methods, even though a glimmering suspicion of their inadequacy awakens distrust. No other resources present. But a broader view of means possible of acquirement opens before the man of inventive resources. Conscious of his latent powers he boldly announces "I will find a more effective way," where the mere imitator shrinks from considering a probable failure, and takes refuge behind the plea that no other method than the one commonly approved, is at his command. The disposition to ask, "why may I not find a better way," marks in the dentist a degree of mental alertness which is a kind of guarantee of his avoiding error. It is of course not a positive check against error, because the principle upon which he projects his invention may after all fail. Still, the constitution of such a mind is sure to be such as to detect flaws if they exist, in current methods, and in this alone is an important element of progress. If the man occasionally makes a mistake, the sum of all his errors is likely to be more than offset by the aggregate of instances in which he points out in advance the false promises upon which others project vaunted inventions of appliances or methods of practice. He is not usually one to indorse a method or an appliance on the word of another; nor is he on the other hand one of the many who deery without sufficient reason a half-tried appliance or method.

But while there is and must be differences in gifts whereby ends are to be attained, there need be inferiority on the part of no one of intelligence, in clearly recognizing conditions calling

for specified courses of procedure in given cases. The ability to pause and thoughtfully consider, to forecast the probable outcome of an operation, to estimate the patient's ability to bear it, ought to appear in the case of any and all dentists of ten years experience. The extension of his influence in the community, his hold upon the confidence of his patients, the widening of the field of his practice; in short, the measure of his success in coming years depends not merely upon the dentist's manipulative skill, but far more upon the careful cultivation of his judgment as to what to do and what to leave undone. For in this age of fierce competition no man holds an undisputed field. Family is linked to family among his patrons, and he who through heedlessness makes a serious error, may never learn the full extent of its adverse influence.

We hold then that the first requisite to the cultivation of proper habits of discretion in dental practice, is a certain degree of incredulity as regards what one hears and reads. The more thoroughly honest at heart a man is, the more particularly he needs to avoid the danger of accepting plausible statements from the platform, and in the pages of dental journals. Not all of us are so constantly mindful as is the sagacious editor, of the fallacies which are liable to characterize the writings of those who contribute to the journals, or we might be led as they are to question their being duly accredited and responsible messengers of truth. Not that we bring any harsh accusations against the body of contributors, presumably as honest in their motives as we ourselves are. But access to the journals is easy, perhaps too easy, and some who write are too well satisfied with the achievement of having written at all, to exercise a severely self-critical faculty in reviewing their finished work. The time is no doubt near at hand when all this will be changed, for with the accession of more liberally educated men to the ranks of the profession, the number of able writers will be vastly multiplied; the dental journals will no longer consent to serve skim-milk where an abundance of cream is to be had, and only carefully revised productions, sound in doctrine and calculated to edify, will be accepted for publication. But at the present time some of our journals, aye, and some of our text-books too, need to be read with a critical regard for the vanities and other petty foibles of authors, who in the heat of composition forget accuracy, explicit-

ness, and fidelity to recognized principles. Well do we need to bear in mind the legend, "observe, compare, reflect, record." There are many enthusiasts in the dental profession, men who though not exactly "swept to and fro by every wind of doctrine" are still not sufficiently self-contained, not sufficiently well poised to escape the infection of half-matured ideas and suggestions coming from unsanctioned authorities. The danger has been clearly recognized and provided against by an undertaking to sift out the kernels of wheat from the chaff, and republish what is really valuable in the form of a compendium. While this is probably not intended as an affront to the intelligence of the mass of the profession, many there are who will elect to do their own winnowing, either through distrusting the ability of any one to select for them, or through feeling that there is a certain advantage to be derived from considering the obvious errors of those whose contributions would be certain of being rejected from the compendium. Nor is this last consideration one to be lightly set aside. For a view of error is essential to stimulate progress, to provide inquiry, to suggest improvement. Still, the fact remains that he who compiles a compendium does so in the capacity of an editor and fulfills an important office in bringing to the attention of some who will not read widely what is passing in the world of dental letters. The product of his labor still remains amenable to the injunction to "observe, compare, reflect, record."

From this general view of our subject we come now to a practical consideration of the things which either contribute to the dentist's success in his profession, or lead the way to his failure. Discretion in the performance of dental operations implies an intimate knowledge of the patient's health, temperament, daily habits of life, and many other things which come to the attention of the thoughtful observer. We premise that the dentist building up a practice needs to remember that one failure advertises him unfavorably in undue proportion to a dozen successful operations. He needs constantly to bear in mind that his patronage is not to be solely from those who come and go and never return, but from those who are almost sure to return with fillings lost, plates broken, and new decays. He needs to be impressed with the importance of foreseeing in the course of event what will probably happen to this filling or that plate, or

the other piece of bridge-work, and to err on the side of predicting possible failure rather than yielding to a sanguine impulse to promise permanent success. It requires a degree of moral courage which perhaps few possess, boldly to announce in advance of what promises to be a paying operation, that it will probably fail utterly, in three, five or ten years. Such a course may drive the applicant away from the office. And yet how often are patients dismissed after numerous sittings and trying operations, laboring under a delusive notion,—which the operator dares not share,—that they are done with dental operations for all time! Better far to have told them in the first place what you suspected. Still more unfortunate the case of the young dentist sanguine of his ability to accomplish the miracle, when he discovers years afterwards, his failure.

Discretion in the performance of dental operations appertains to a choice of time and occasion for performing them. The patient comes in announcing that he or she is not feeling well; must be back to the dressmaker's or the counting room in forty minutes,—or the dentist himself is not well, or has only forty minutes to spare for a two hours' operation. Just at this stage the operator with real discernment and decision of character scores a success by declining to operate at the time. He perhaps disappoints his patient, but he is more than likely to find that he has gained increased confidence. The foregoing relates perhaps more distinctly to management of the dentist's patients; now for some of the instances of failure. A large, iron-jawed man comes in complaining that his fillings are wearing out. He shows the six anterior teeth, upper and lower, twelve in all, bushed with gold. At least he reminds you that you bushed them three years before. The teeth proper project about a line above the gum borders. All of the gold in the lower six, excepting that in the retaining grooves, is gone. The upper six are battered all out of shape. You find by referring to your ledger, that you finished those fillings with gold and platinum folds, and you recall that you told him they ought to last twelve or fifteen years. He recalls that he paid you \$200 for the fillings. There they are, a brilliant array of ruins. You ask him, "where are the plates I inserted to supply the loss of the back teeth?" "Oh, I never wore them after the first day." "Didn't I caution you that you must wear them or the fillings in front would be likely to give

way?" "No, I don't think you did." Nor did you, because you had in reality no such misgivings. You thought that the gold and platinum cappings would stand any abuse. But what most chagrins you is the discovery that most of the teeth are loose; pus oozes out around them. The man had catarrh when you performed the operations, and you noticed the fact, and in the absence of any certain knowledge that catarrh may involve the teeth, you went ahead without particularly considering this possible, even probable outcome. Now you wish that you had extracted those teeth and made the man a full denture. You knew that more partial sets of this description are worn in washstand drawers than in peoples' mouths, and yet you made those partial sets, hoping that this case would prove an exception.

Case No. 2.—A patient comes in for whom you filled half a dozen approximal cavities in incisors, a year before. Molars and bicuspids in both jaws are missing. Fillings out, much to your astonishment. The teeth are widely separated and incline inward. You fill them again, taking extraordinary pains. In another year the patient returns. Fillings out the second time. And so it goes on, until finally you wake up to a realization that they have been *ground* out. The teeth have been doing double work as grinders and as incisors proper. The cavities being difficult of access you were unable to mallet the fillings throughout, hand-pressure was largely relied on. A filling lacking in the quality of density was the result, and constant attrition caused their disintegration. You recall the fact that you advised wholesale extraction and a full denture, in the first place, but the patient demurred and you weakly yielded instead of insisting on being the "doctor."

Case No. 3.—An Irish cook. You will know better next time.

Case No. 4.—Old woman of seventy. Has been edentulous for twenty years. Children insist on her having false teeth. No perceptible alveolar ridge below. Lips deeply retracted. You make full dentures with ample restoration by means of "plumpers" of lost tissue. Patient delighted. Wears teeth for six months—in little blue china closet. Too much of a mouthful. You make another set, using smaller teeth and *no* "plumpers." Old lady waylays you at church "mite" societies, county fairs, funerals, etc. Wants her money back. Moral: Don't undertake to insert teeth for old people.

SURGERY OF THE ANTRUM.*

BY G. S. JUNKERMAN, M.D., D.D.S., CINCINNATI, O.

THIS paper has nothing new to offer on the subject of the antrum. It trusts rather to its kind reception before this society on a weakness of human nature, viz., that we always like to hear something that we know already; we like to discover that we know something that somebody else considers worthy of study.

The antrum is only one of the air cells of the skull, and since it is of importance as the largest of these, it is known by the dignified title of the "Antrum of Highmore." It, like other air cells of the skull, is lined by the schneiderian membrane. It is of significance to the oral surgeon because it comes within his jurisdiction to treat its diseases, and it is the only air cavity that bears any relationship with the teeth. The antrum is located mainly within the superior maxillary bone, but its walls are completed only by the addition of the inferior turbinated, lachrymal and palate bones, which bones are interested in forming most of its nasal wall. It is triangular of shape, with its apex pointing to the canine fossa. The base looks backward toward the palate. The other walls look respectively toward the nasal fossa, the orbit and the palatine process of the superior maxillary bone. If this cavity has any function I think it differs somewhat from the function of the remaining air cells of the head, viz., to warm the air before it passes to the lungs. In order to retain the contour of the face nature has combined in this bone, by the formation of this air cavity, both lightness of weight and extent of surface. She has furnished an ample frame for the face and yet retained the balance of weight in the poise of the head. If the cavity were solid bone tissue it would make a remarkable difference in the weight of the head. There is another feature of importance which is the better maintenance of blood supply to the face, and of direct importance to the dental surgeon in that by the presence of this cavity a freer supply of blood and nerve force to the molars and pre-molars is maintained. All diseases of this cavity would be treated surgically. Yet we would not wish to magnify the importance of the diseases connected with

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it. It is subject to about the same diseases that may affect any other mucous membrane; add to this the fact of its being a cavity of some obscurity and rather restricted walls, and we have in view all the obstacles with which we have to contend in diagnosis and treatment. As a matter of fact it may be stated that any antral diseases attains importance not as regards the antrum itself, but as the progress of the disease affects the surrounding tissues. In most cases while the disease is confined to its own walls there is little or no inconvenience to the patient; but should it press upward, the orbital cavity is invaded. If the disease should extend at the expense of the inner wall of the cavity, the nasal fossa would be invaded, and should the floor of the cavity give way the mouth would be associated with the disease. A forward projection of the disease would involve the face. From this we find that the oral orbital and the nasal cavities are not only liable to be connected in disease with the antrum, but owing to the thinness of the partition walls between these cavities they are very easily invaded.

For purpose of diagnosis and treatment of any disease of the antrum access to the cavity must be gained. There are three ways of entering the antrum. There are two ways practical to the oral surgeon, and both of these are by way of the mouth. These are by way of the canine fossa, which is a little depression just posterior to the root of the inferior canine, and by way of the alveolar cavities of the premolars and molars. The third entrance is by way of the middle meatus of the nasal fossa. This in reality is the only entrance which in the recent state is open. The dental surgeon is not equipped with instruments for treatment through this opening, and had better restrict himself to the other means of egress. Entrance should be gained into the antrum by way of the canine fossa when the apex of the cavity can be definitely located. The disease may indicate the position of this opening, and under the circumstances you are perfectly justified in perforating with a stell instrument and enlarging the opening to a convenient size. This is especially indicated if the teeth are all present and found to be intact.

Engorgement of the antrum characterized by facial tumor is the indication for this plan of procedure. Where facial tumor is not present there is no absolute rule by which you can reach the antrum through the canine fossa. The development of the

antrum is so variable that it cannot be perfectly determined just how far forward the cavity is developed. It may be as far forward as the canine, or no farther than the first molar. There is little risk in forcing entrance through the palatine root of the second molar, and this means should always be resorted to if possible. Facial tumor and preservation of the teeth would indicate the canine fossa operation. The alveolar operations are preferable in all cases where the preservation of the teeth are not concerned. It would be of no purpose to enumerate the various diseases which may afflict the antrum and indicate their treatment. These points of information may be gained by consulting any chapter on mucous membranes and their diseases. With the antrum the diseases are complicated by their being confined to a cavity. Free and open drainage for the cavity is the first principle of treatment; antiseptics the other principle of treatment.

The operator is frequently brought in contact with the antrum accidentally in the process of the extraction of teeth. This may occur by the forcing of the root into the antral cavity, thereby fracturing the alveolar wall, or by tearing away part of the floor of the antrum with the root of the tooth. Either case is liable to produce a complication in the form of troublesome inflammation. The former mishap would necessitate the enlarging of the opening made, and a removal if possible of the foreign body. If this could not be accomplished, the opening should be enlarged to give the products of inflammation a chance to expel it.

There are, no doubt, many obscure pains, especially of a neuralgic nature about the head and face that arise from antral trouble, and a small amount of surgical interference will often relieve a seeming severe complication.

There are diseases of the antrum that are brought by association with the other air cavities amenable to treatment through the nasal opening of the antrum, but these are not in the fold of the oral surgeon.

PERMANENT CLOSURE OF THE JAWS, WITH
REPORT OF A CASE.*BY WM. KNIGHT, M.D., D.D.S., PROF. OF ANATOMY AND ORAL SURGERY
IN THE OHIO COLLEGE OF DENTAL SURGERY.

THE boundaries of the mouth consist of a very dilatable sac, lined by an elastic mucous membrane. Thus the walls of the cavity are prevented from being unduly stretched, or lapsing into folds when the mouth is closed. Of course any cause that may destroy any part of this lining membrane will interfere with its movements in proportion to the injury sustained. A mucous membrane, after recovering from an injury or ulcerative disease, is much more liable to the so-called secondary cicatrixatrophy, than is the skin of the body. This atrophy is slow but irresistible in its progress, even when but small portions of the mucous membrane have been destroyed, there follows gradual but complete immobility of the jaws. Prof. Esmarch, in his valuable essay upon the subject, says, "Injuries to the mucous membrane of the cheek damage the mobility of the lower jaws in a greater or less degree by their cicatrizations, as is well known, and the cause of this ankylosis of the lower jaw is often thought to be a growing together of the inner surface of the cheek with the bones or gums; this is not a correct view, however, and has in many cases led to improper treatment."

Permanent closure of the jaws is the result of many affections of the tempero-maxillary joints. It may be due to a severe sprain or concussion or arthritic inflammation leading to a deposition of plastic matter, and the conversion of this substance into cellulo fibrous cartilaginous or osseous tissue. Again, permanent closure of the jaws may follow the exanthemata, as in the case of scarlet fever, reported by Dr. Maas, of Breslau; or be caused by pressure of a tumor in the parotid region, making a direct pressure upon the tempero-maxillary joint. Immobility of the jaw is occasioned in rare instances by an osseous bridge extending from the lower to the upper jaw, or from the lower jaw to the temporal bone. Dr. Samuel Gross writing upon this subject, says, "However induced, the effect is not only inconvenient, seri-

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ously interfering with mastication and articulation, but it is often followed, especially if it occur early in life, by a stunted development of the jaw, exhibiting itself in marked shortening of the chin, and in an oblique direction of the front teeth." The treatment of this distressing condition has been until recent years most unsatisfactory. In cases of immobility from cicatricial tissue, experience has amply proved the utter uselessness of excising the constricted parts and restoring to after dilatation. Dr. Gross, noticing this, says, "When the immobility depends upon the presence of inodular tissue, the proper remedy is excision of the offending substance, an operation which is both tedious, painful, and bloody, and unfortunately not followed by any but the most transient relief, owing to the tendency in the parts to reproduce the adhesions, however carefully and thoroughly they may have been removed. During my residence in Kentucky, I had a large share of such cases, and although I never failed to make the most thorough work—not infrequently repeating the operation several times at intervals of a few months—it is my duty to state that few of them were permanently relieved. After the excision is effected, the patient must make constant use of the wedge, wearing it for months and years, so as to counteract the tendency to reclosure." Prof. Esmarch, who had a large experience in these cases, writes as follows: "All the hitherto received methods, such as freeing or cutting through of the cicatrix from the mouth—the separation of the whole cheek—in order to accomplish the perfectly, the extirpation of the mass of cicatrix—the application of mechanical apparatus in order to drag the jaws asunder by degrees, and so can only be of evil in those cases where in some angle or other there is found a remnant of mucous membrane. If one succeeds after separation of the cicatrix in preventing, by the application of mechanical means for a long time, the cicatrization is the undesirable direction, the contraction will take place in another direction, and by degrees will drag the remnant of mucous membrane up to the skin. In every case it takes years before such methods can be properly estimated, for, as far as is known, the secondary shrinking of a cicatrix takes place very late, even after complete or sufficient healing over has occurred. Putting aside the most favorable cases, there still remains a number of patients of this kind, in whom the usual methods produce no lasting cure, j.

because there is no more old mucous membrane left; and for these cases I recommend the formation of an artificial joint in front of the contractions, in order to give, at least, the other half of the jaw some, although a limited motion, and so to lessen considerably the sufferings of these unfortunate patients."

The suggestions of Prof. Esmarch, to form an artificial joint in front of the contraction has been productive of much good. Previously to this time, Diffenback had recommended, as well as tried, the formation of an artificial joint, but behind the contraction, and naturally without any good result; since the impediment to motion lies more forward and thus is not removed. This proposal of Prof. Esmarch, to form a false joint in front of the cicatrix, was suggested to him by a case which came under his care in 1854, in which considerable destruction of the cheek and contraction of the cicatrix had occurred, together with immobility of the jaw and necrosis of a portion of it. The necrosis was fortunately in front of the cicatrix. The bone having been removed, it was found that mobility was restored and a useful amount of movement obtained. Mr. Mitchell Henry was the first, however, to put Esmarch's suggestion into practice, his patient, however, dying from pyæmia. Christopher Heath, F.R.C.S., has since had several successful cases, so that this operation is now an established one in surgery.

The operation suggested by Prof. Esmarch is especially indicated where only one side of the jaw is affected, usually securing to the patient a useful, though one sided movement of the bone. Various modifications of this operation have since been devised and applied by different surgeons to suit special cases, and thus many persons afflicted with closure of the jaws have been relieved.

In order to give relief in cases of ankylosis due to the destructive disease of the temporo-maxillary articulation, our treatment must be directed with the aim of securing a false joint, or joints in case of double ankylosis, through some point of the ramus, and not as some operators have done in front of the masseter. This is sufficient to liberate the body of the bone so

enable the patient to open the mouth, but the hand has to be brought into use in the act of masticating. If the immobility is due to fibrous adhesions formed between the condyle and the glenoid cavity, the method as practiced by Mr. Spenton of dividing these adhesions with the tenotomy knife is to be recommended.

In case of rheumatoid arthritis, in which the suffering is great, as well as in cases of osseous ankylosis of the tempro-maxillary joint, excision of the condyle seems to offer the best means of giving relief. The operation through the ramus above the angle appears to me to be the most suitable in all cases of double ankylosis, not of rheumatic origin. Our aim being, in removing a small wedge of bone to establish an artificial joint; should the result prove successful, all of the muscles of mastication excepting the external pterygoid, have their functions retained to the benefit of the patient.

Rokitansky describes the unnatural joints resulting from fracture as of two kinds, "one, more or less resembling a synarthrosis; the other, like a diarthrosis, and accordingly, in its proper sense, a new joint. In the former case the fractured ends of the bone are held together by a ligamentous tissue; either a disc of ligament the thickness of which may vary, is interposed between them and allows of but little movement, or as occurs when there has been loss of substance from injury, absorption of the fractured ends or otherwise—ligamentous bands connect the fragments and allow them to move freely on each other. The connecting tissue appears to be nothing more than the intermediate substance which has failed to become transformed into secondary callus, and remains in its first state. In the second cases, a ligamentous articular capsule is formed and is lined by a smooth membrane which secretes synovia. The fractured surfaces adapt themselves to each other, and become covered with a layer of tissue which is fibro-ligamentous, or more or less fibro-cartilagenous. They may articulate immediately with one another, or may have between them an intervening layer of ligament which corresponds to an articular cartilage, and their movement upon each other is more or less free according to the size of the articular capsule and the form of the articulatory surfaces. These last are sometimes horizontal and smooth. They glide over each other and allow of restricted motion; sometimes one surface becomes convex and the other concave; sometimes both are rounded off and lying within a capacious capsule far apart; they come in contact only during particular movements. The articulating capsule is the product of the inflammation of the soft parts; the cartilaginous-form layer, which covers the ends of the bone is secondary callus, arrested in its metamorpho-

sis and converted into a fibrous tissue. The other ligamentous cords which are sometimes present and the structures resembling an inter-articulating cartilage are remnants of the intermediate substance. Both forms of new joint, but more particularly the synarthrodial form have an analogue in the lateral new joints sometimes formed between the masses of callus thrown out around two adjoining bones."

Having thus reviewed the different modes of operating for permanent closure of the jaws, and the manner in which movement may be secured, I would like to read to you a case which has been brought before the Faculty of the Ohio College of Dental Surgery, in which the members during the past session have shown great interest. I submit the entire case, as well as the details of the treatment, to your criticism, while the patient herself is present for examination.

On September 30th, 1891, Barbary Engel, aged eighteen, called at my consulting rooms, having been sent by Dr. H. A. Smith. An examination showed a pitiful condition of the mouth. There was no movement whatever in the lower jaw. The gums were swollen, red, soft, and bled upon the slightest touch; some of the incisors had been extracted, but the remaining teeth, part of which were in a decayed condition, were firmly locked and crowded one another from their normal position. From this miserable condition she pleaded earnestly to be relieved. She has a clear healthy complexion, a good development of head, bright, intelligent looking blue eyes; these characteristics give expression to a face, that owing to a marked recession of the chin, attending upon arrested development of the lower jaw, would otherwise have the stamp of idiocy.

At the age of three years she had a fall upon the chin, which was succeeded by swelling about the face, and gradual tightening of the jaw, until complete closure ensued. From this time the jaw has remained immovable. Her nourishment, necessarily consisted entirely of liquids, to which most likely the clearness of her complexion is due.

Within the last fourteen years several attempts by different surgeons were made, under chloroform, to force open the mouth, but without success; still I thought something more should be attempted to relieve her sufferings. The various operations by which this condition may be remedied were carefully considered,

and the one selected was, if possible, to form artificial joints above the angles on both sides of the lower jaw. The danger attending this, and the uncertainty of success were explained to the patient, as well as to her friends. The only promise given being that in case of failing to liberate the jaw we would extract the teeth.

On October 9th, assisted by Drs. H. A. Smith, H. Cundell Juler, F. Kebler, H. C. Matlack, as well as the Internes, Drs. Newton and Seofield, in the presence of the Faculty and students of the Ohio College of Dental Surgery, the operation on the right side of the lower jaw was made. The incision passed below the ear along the posterior border of the ramus to near the angle of the maxilla: the anterior surface as well as the border of the ramus were then cleared of soft parts by the periosteotome, and handle of the scapel, sufficiently to readily admit into the wound a small movable back saw; the bone was then carefully sawn through, the direction being obliquely upward from about a quarter of an inch above the angle. The attempt to remove a wedge-shaped piece of bone from the upper fragment, with the saw, was not entirely successful, but with the aid of the bone cutting forceps, and also the chisel and mallet, it was removed in small pieces. The hemorrhage throughout the operation was slight. The dental artery, by forcing and holding for a few seconds a small plug of soft wood into its canal, ceased bleeding. The soft parts were brought together and the wound dressed with iodoform. After the patient had been removed to her room she did well; during the first forty-eight hours there was a slight rise of temperature, and for a few days a little swelling of the neck, as well as a difficulty in swallowing; but there was no movement of the jaw gained by this operation. The difficulty in swallowing was most likely due to the injury done to some of the fibres of the superior constrictor, as the attachment of this muscle to the jaw was involved in the portion of bone removed. The patient left the hospital on the eighth day after the operation.

The patient was again admitted to hospital on October 20th, and the 23rd, was brought before the students of the Ohio College of Dental Surgery. An operation upon the left side of the jaw was then made, Drs. H. A. Smith, P. S. Conner, H. Cundell Juler, Grant Mollyneaux, and H. C. Matlack assisting. The operation in character was similar to the previous one, and so liber-

ated the jaw as to enable Dr. Mollyneaux to extract several badly decayed teeth, that had caused the patient much suffering. From this operation the symptoms were more pronounced, not only was the temperature higher, but the swelling of the neck and the difficulty in swallowing were more severe; but these symptoms subsided after the third day. On the second day after the operation she was asked to protrude her tongue. To her surprise and great joy she found that she was able to do so. "Oh!" she exclaimed, "I can put my tongue out, I can put it out." This organ, however, was very small, being apparently arrested in its development from want of use; similarly as the inferior maxilla had been. Not an uninteresting feature in this case was the rapidity of growth which took place in her tongue, for within a week after she had first protruded this organ, it had gained double its size.

On the fourth day, Dr. Mollyneaux assisted by Dr. G. C. Minturn, succeeded in obtaining, under chloroform inhalation, an impression of the interior of the mouth. The molar teeth were lying horizontally with the crowns facing the tongue, but with the use of mouth-washes, first containing permanganate of potash, and later one more astringent containing tincture of hydrastis with chlorate of potash, her mouth was relieved of its foul condition and became clean and sweet. The gums and oral mucous membrane assumed a firm and healthy appearance. From the impression made of her mouth, silver shields were applied, which have assisted in maintaining the movement which has been gained. Her speech which before the operation was muffled, became clear and distinct. Her condition was thus decidedly improved, although but slight movement of the jaw had been gained. She left the hospital on the eighth day quite well, with the exception of a little healthy pus oozing from the wound on either side.

For sometime subsequently the patient was daily under my observation. Within a week of leaving the hospital she was able to chew bread and eggs, and finally on November 9th, 1891, for the first time since she was three years old, she was able to eat meat, a quail contributing to her meal.

The movement in her jaw is an up and down movement only, no lateral movement whatever being present. It is evident that in this case a double synarthrodial joint has been established.

It would have been more satisfactory to have secured a double arthro-dial joint. There is not more than an eighth of an inch movement in the molar region, but this to the patient is valuable. The scars upon the face are not very noticeable and will become less in time. The present condition of the patient is good.

CLINICS AT MISSISSIPPI VALLEY DENTAL SOCIETY.

DR. O. N. HEISE demonstrated the use of the new anæsthetic, pental, on two patients. The extraction of the teeth was entirely painless and there were no bad after effects. This anæsthetic bids fair to become popular.

DR. W. B. AMES demonstrated the use of his new copper-oxide cement. It is more nearly insoluble than the ordinary cements, but its black color is an objection for anterior fillings. It is of special value, however, in setting crowns and bridges.

DR. McHAFFANY, of Louisville, made and adjusted an all gold bicuspid crown.

MR. KERR exhibited the Downie Gas Generator, Crowning Furnace, Pneumatic Plugger, etc.

THE GENERATOR generates gas from gasoline, is safe and just as effective as illuminating gas. The air from the bellows is forced to the bottom of the tank so that it must circulate all through the gasoline before it can get out, and so gives off the gas more evenly than where the generators are packed and you get only the surface evaporation. It is estimated that the expense of the gas is not more than ten cents per thousand feet. This Generator gives the country dentist every advantage derived from gas in the cities.

THE CROWNING FURNACE is designed for baking Crowns, Porcelain Inlays, Sections, etc., being just large enough to admit of such work, thus giving the best possible results in the least possible time. It does entirely away with the tedious process of baking which has heretofore been necessary to do such work. With it high-grade bodies can be easily fused in from two to three minutes from the time the furnace is lighted. Thus it will be seen that the fusing of porcelain is reduced down to the minimum. It has a platinum muffle, which is perfectly tight, and as there is no place for the escape of gas except at the top, the gas-

ing of work cannot take place, even although the gas is lighted without the blast being turned on.

With this furnace the operator can readily see the work while baking, so there is no trouble about knowing when it is done.

It being so small, and taking so little time to heat up the muffle, makes it possible and practical to run it by time, so the operator may run it by the watch, and know exactly when the work is done.

This furnace can be run equally well with gas or the Gas Generator.

With it, broken teeth can be repaired and made as good as new. It is not the price of the tooth it saves, but it is often difficult to get a match for a tooth just when you want it. With it, the porcelain veneers on bridges, which have been broken, can be replaced without removing the bridge from the mouth. Also Crowns and teeth may be built out in any shape desired, and numerous other things, which present themselves in practice, may be done.

THE CRUCIBLE FURNACE is especially designed for melting metals, such as gold and silver, making alloys for amalgam, experimental work, etc. It is also very useful for brazing, soldering, heating up bridge cases or metal plates to solder, etc.

It has two removable rings of different widths, which set on above the flaring base to carry the heat up around the crucible, the wide or narrow ring being used, according to the size of the crucible; or both rings may be put on at the same time.

THE PNEUMATIC PLUGGER.—The air pump is small and attached to the standard of the engine and run by a friction wheel. The plugger is connected with the pump by a small tube. The blow is accurate and can be regulated instantly to suit the operator.

ALL SORTS.

IN CASES OF SEVERE INFLAMMATION of the peridental membrane of the lower wisdom-tooth, it should be extracted at the earliest possible moment after the abscess condition becomes indicated.—
DR. JACK, *Inter*.

FOR ACUTE PERICEMENTOSIS Dr. Van Woert recommends one part tincture of capsicm to two parts vin. opii. Apply on cotton to gum over affected root.

MOUTH-WASH.—Boro-glycerine, one to twenty, is a good month-wash, much better when ten minims of crude carbolic acid is added to each ounce of the solution. It may be used freely—diluted to suit.—*Review*.

SLIPPERY-ELM TENTS.—DR. JOHN G. HARPER recommends the use of these tents for carrying medicaments into fistulous openings or the pockets in pyorrhœa alveolaris. The tent is prepared of the proper size and length, and dipped into the medicine and carried to place.—*West. Dent. Jour.*

TO BORE RUBBER STOPPERS use a sharp-edged brass tube as thin as possible, and lubricated with soap and water. The hole will be a little smaller than the tube. It may be done by hand, or the tube may be chucked in a lathe. The tube is to be rotated and pressed against the stopper.—*Scientific American*.

PLUG TRIMMERS designed for gold, cohesive and non-cohesive, and for tin, or tin and gold consist of a thin T-shaped blade set in a flattened ebony handle. The arms of the T are sharpened to a chisel edge on both upper and lower margins. The trimmer thus cuts by both pushing and pulling, and is both right and left without change. It is easily kept sharp, and is especially useful for cervical edges.—MR. BALDWIN.

STYPTIC FOR BLEEDING GUMS.—VIAU recommends the following styptic for bleeding gums after the extraction of teeth :

Chloroform	-	-	-	-	60 grs.
Tannic acid	-	-	-	-	30 “
Menthol	-	-	-	-	30 “
Tincturæ krameria	-	-	-	-	1 fl. oz.
Distilled water	-	-	-	-	16 “

—After *Pharm. Centralh.*

DRESSING FOR PYORRHŒA POCKETS.—I take the aristol in a wide-mouthed bottle and put in equal quantities of tincture of iodine, oil of gaultheria, oil of cinnamon, and carbolic acid. It has an advantage over gaultheria and aristol. It is not gummy ;

the iodine cuts it and makes it creamy, so that it can be readily used, and it remains without change for days or weeks. I like the preparation, and have used it for some time.—DR. PEIRCE, *Inter.*

MEDICINE CARRIER.—In speaking of instruments, I would like to suggest that the ordinary quill tooth-pick can be satisfactorily used by splitting off half an inch of it and inserting it in an ordinary nerve-broach carrier. With it you can carry medicine up the side of the tooth nicely. It goes almost up to the apex, because you can shave it down and use a pumping motion, which carries the remedy up the side of the tooth by capillary attraction; after using it can be thrown aside and another made.—DR. DEANE, *Inter.*

BLACKENING OF THE TEETH BY ANTIPYRINE.—It is asserted that the internal use of antipyrine blackens the teeth; this peculiarity should be generally known by the profession, and also among the laity, that objection may be made on this ground to taking it as a remedy. The blackening is the more intense, the more imperfect the enamel, but may be removed by attrition with dilute acid. The considerable use of antipyrine for several years back, gives importance to this later observation.—*Vierteljahrsschrift für Zahnheilkunde.*

TREATING ALVEOLAR ABSCESS.—To my mind alveolar abscess belongs to that class of surgical operations best treated at the home of the patient, and that the dentist should become a visitant until acute symptoms have abated, and that systemic conditions should never be omitted in its treatment when purely local treatment is not meeting the requirements of the case. We too often look only to local treatment. I think we ought to relegate this acute form to the room and bed, where the case can be managed by visitation.—DR. FAUGHT, *Inter.*

A NEW USE FOR CHLORIDE OF ETHYL.—This consists in directing the freezing jet upon the impression-cup during the taking of an impression, and thus hardening the modelling composition while it is still in the mouth.

It is evident that by this means any change of shape is prevented, and that the impression can be drawn from the mouth

absolutely clean and perfect, even to the minutest details. A single trial will convince one of the utility of the method.—*GEBRUDER GESELL, Le Progrès Dentaire.—Cosmos.*

STOMATITIS IN CHILDREN.—Where the trouble is extensive and painful the *Province Medicale* recommends the following treatment :

1. The gums should be brushed with—

R	Cocaine hydrochlor	-	-	1½ grains.
	Sodii chloridi	-	-	15 grains.
	Glycerin	-	-	2½ drachms.
	Aquæ	-	-	2½ drachms.

M. Sig.: Use a camel's-hair brush.

2. A spray of a solution of boracic acid should be frequently used.

3. Bromides internally.—*Med. Brief.*

MOUTH NAPKINS.—We see it stated in the reports of discussions of dental subjects, that it is important that mouth napkins should be carefully washed. We take issue with the statement. They should never be washed at all. They are not worth it. The dentist who clings to the old-fashioned linen mouth napkin is away behind the times. Sterilized canton flannel may be bought for a few cents, and a single yard of it is sufficient to last an ordinary office for weeks, at least. It can be cut into napkins of varying sizes, and once used they should be thrown into the waste basket. This material is much better than linen, for it is soft and agreeable to the mouth, while it is a better absorbent of saliva.—*Dent. Practitioner.*

ROOT FILLING MATERIAL.—

R	Iodol, gr. x ;
	Zinci oxidi, gr. xx ;
	Ol. cinnamon, gtt. v ;
	Vaseline carbol., q. s.

Mix at a temperature of 140° F., to form a stiff paste.

This paste is so thick and dense that it can be rolled into shape very similar to the gutta-percha points manufactured for filling root-canals. It is immaterial what the temperature of the surrounding parts may be, you cannot get inflammation enough to cause the least change of the vaseline, a difficulty which I had

in the beginning from macerating the mixture cold.—DR. VAN WOERT, *Inter.*

TREATMENT OF ALVEOLAR ABSCESS.—DR. CROUSE's method is as follows: Prepare your cavity; it is not necessary to give the details, except that care must be taken not to force the broach into the pulp-canal, or get the cavity clogged with foreign matter; take a piece of soft india-rubber, cut it as near the size and shape of the cavity as you can; fill the cavity with carbolic acid, place the india-rubber into the cavity, and with it force the carbolic acid out through the fistulous opening. This is readily done with a blunt instrument and sudden force against the rubber, such force as is used in packing gold by hand-pressure. In my hands, he says, this has been the most effectual way of accomplishing the treatment. One such treatment is generally sufficient.

THE USES OF ALUMINUM.—A piece of aluminum wire makes a very handy carrier for conveying iodine, aromatic acid or any corrosive agent, except muriatic acid. It answers the same purpose as gold or platinum, being non-corrosive soft, pliable and clean; can be bent or formed into any shape and only costs a trifle.

Aluminum wire is very useful for many other purposes in the dental office, such as strengthening rubber plates, pinless teeth, making canal points, etc. I have lately had made to order, some aluminum wire gauze for strengthening rubber plates—it works nicely; by covering the model with gauze and packing rubber over it we can make much stronger plates, the rubber is tougher and more evenly vulcanized.

Copal picture varnish, which may be had of a dealer in artists' materials, will do to paint over a exposed pulp. Damar varnish will answer for the same purpose.—*Off. & Lab.*

ALCODIFORM IN CAPPING NERVES.—If the nerve is very much exposed, apply a ten per cent. solution of muriate of cocaine. Cut away part of the nerve and bleed it freely. After hemorrhage has ceased, cover the nerve with a thin coating of alcodiform. As soon as the alcohol has evaporated, cover this with a thin layer of chloro-percha, and as soon as the chloroform evaporates, flow over the gutta-percha some cement. After this

cement hardens, add more cement. After cutting away excess of cement the cavity is ready for permanent filling. The cavity must be kept dry with dam during this process. If you get too much alcodiform on the nerve it can be reduced by touching it with a piece of bibulous paper saturated with alcohol. When the nerve is very slightly exposed, bleed freely, apply alcodiform (iodoform with just enough alcohol to make a thick, creamy mass), and cover with chloro-percha, leaving off the cement if you fill with an amalgam or any plastic filling.—S. M. JOHNSON, *Texas Dent. Jour.*

A NEW PREPARATION OF GUTTA-PERCHA.—In setting crowns of Porcelain with platinum pins extending into the roots, and for setting gold crowns and caps, I find a filling made of vermilion and gutta-percha of service.

This is readily made by mixing together with heat and careful working one part of gutta-percha and three parts of vermilion. This combination resists the destructive action of the mouth much better than the usual combination of gutta-percha and oxide of zinc. For buccal cavities, where the ordinary gutta-percha filling softens on the surface, it is of value. A whole list of gutta-percha stopping can be prepared without the use of oxide of zinc, which are interesting from an experimental point of view, and I shall hope at some future time to report on these. The combination of iron oxide with gutta-percha is one of these, and favorable results seem to have been obtained with this mixture, but it is a matter of years to determine the relative value of these fillings.—DR. W. H. ROLLINS, *Inter.*

SILVERING IRON.—A new process for silvering articles of iron is thus described. The article is first plunged in a pickle of hot dilute hydrochloric acid, whence it is removed to a solution of mercury nitrate, and connected with the zinc pole of a Bunsen element, gas carbon or platinum serving as the other pole. It is rapidly covered with a layer of quicksilver, when it is removed, washed, and transferred to a silver bath and silvered. By heating to 300° C. (572° F.) the mercury is driven off, and the silver firmly fixed on the iron. To save silver the wire can be first covered with a layer of tin. One part of cream of tartar is dissolved in eight parts of boiling water, and one or more tin anodes are joined with the carbon pole of a Bunsen element. The zinc

pole communicates with a well cleaned piece of copper, and the battery is made to act till enough tin has deposited on the copper, when this is taken out and the ironware put in its place. The wire thus covered with tin chemically pure, and silvered, is said to be much cheaper than any other silvered metals.—*Scientific American*.

IN REGULATING TEETH we often use wires. We connect the teeth with a twist, and that twist is forever untwisting. I have adopted an expedient that makes it very easy to do a difficult thing. I make my wires loop-wires. I connect them by a portion of solder, and in that way have much greater efficiency than under ordinary circumstances. I take two loops and bring them together, and have a mere speck of solder to connect them. Each time you commence "*de novo*"; you are solid from the foundation. I will have them passed around, and they will probably recommend themselves, and suggest the advantages to be derived from over an ordinary twist. You will be surprised to learn how, by thus connecting the loops, it facilitates and gives permanency to the operation of wiring the teeth.

I use copper wire, for I find it tougher than any other metal. It does not oxidize in the mouth, has no taste, and is always bright and clean.—DR. DWINELLE, *Inter*.

THE SALIVA AND PATHOGENIC MICRO-ORGANISMS.—SANARELL (*Centralbl. f. Bakt. u. Paras.*) says that, considering the frequent presence of pathogenic micro organisms in the mouth, it is remarkable that primary lesions appear so rarely there, and that wounds heal so kindly. The first condition has been attributed to the chemical properties of the saliva, to the resistance and regenerative power of the tissues of the mouth, and to the conflict between pathogenic bacteria and saprophytes. The author investigated the properties of the saliva in respect to the growth of the micro-organisms most often found in the mouth. The saliva is shown to possess bacteria-killing properties not unlimited in degree, but dependent on certain conditions, and chiefly on the number of micro-organisms introduced into it. Thus the staphylococcus aureus, the streptococcus pyogenes, the micrococcus tetragenus, and the typhoid and cholera bacillus and the pneumococcus behaved differently, but the former at length ceased to thrive and the latter lost its virulence. It is not yet clear to what sub-

stance the saliva owes its bacteria-killing properties. The author sums up that the saliva is an unfavorable cultivation medium for certain pathogenic micro-organisms, destroying them (when not too abundant) more or less rapidly, and that it so alters the type in others (for example, pneumococcus) as to render them powerless.

METHOD OF REPLACING PORCELAIN FACINGS.—After a suitable facing has been selected, drill a hole through the bridge or crown and enlarge it with a small fissure-bur to a horizontal slot, of sufficient width and length to admit of the pins on facing and in proper position to allow the facing to be fitted to place. After grinding the facing to fit, bend the ends of the pins together and solder, forming a loop of sufficient length to reach nearly through or to within about a line of the inner surface of the gold. Then, with a fissure-bur, make a groove on the inner surface of the gold, slightly larger at the upper than at the lower end, at right angles with and across the centre of the slot, of proper depth to insert a pin through the loop on facing. Make a tapering pin to fit the groove, and after filling the slot and groove and covering the anterior surface of the gold—which now serves as the backing to the porcelain—with creamy cement, place the facing in position and insert the pin in the groove and loop with force enough to make it tight and the facing solid. After the cement solidifies, grind the pin even with the gold and polish.

This makes a most strong and durable repair without any possibility of the porcelain twisting or getting out of place, and can be done in thirty minutes.—DR. E. B. WHITE, *Inter*.

SENSITIVE DENTINE OBTUNDENTS.—DR. BOGUE: I find that where the patient is extremely timid, if I wish to get rid of sensibility, and have not the fear of destruction of the pulp, a little pure cocaine, or rather cotton dipped into carbolic acid, and then into powdered cocaine, will obtund the sensibility enough to put in granulated chloride of zinc with little or no pain. It deliquesces very speedily. In a minute and a half the insensibility of the cavity is often complete.

DR. HOWE: Only in the pulp, did you say, Dr. Bogue?

DR. BOGUE: I did not say; that is what I want you to share the responsibility of. I am not aware of ever having done harm to the pulp, but I cannot assert that it will not do harm. The

granulated chloride of zinc is quite fine. It will stay in that condition just a little while. You keep it in an hermetically-sealed bottle. You can put a grain or so into smaller bottles at a time, but it will deliquesce and get into solid masses very quickly.

DR. DWINELLE: In a paper I wrote some time ago I recommended chloride of zinc, which has been suggested. I not only recommended using the salt pure on sensitive dentine, but enforcing its effectiveness by heat. I had steel bulbs of different kinds, which, after heating, were put into the cavity and literally cooked the inside of the tooth. This can be done with impunity. I never lost a tooth by the use of it.—*Inter.*

THE CONTRACTION OF RUBBER-PLATES.—The fact is well established that vulcanite contracts in cooling, and, in consequence, dental plates made up with section teeth almost invariable warp, and require more or less manipulation before a satisfactory fit is secured. In the case of upper plates, the change is quite apparent, the rear palatal portion being thrown up, causing the plate to rock. The arching up of this part of the plate is caused by the contraction of that portion immediately behind the teeth, the thin palatal part acting as a stay, and diminishing to some extent the amount of change experienced.

When, in repairing an upper plate, the center portion is sawed out, it will be found that its heels will spring together, certainly as much as the amount removed by the saw cut, and sometimes even more. This shows that the same action takes place with lower plates, and to a greater extent than with upper ones. As they leave the vulcanizer, full lower plates, with section teeth, are always sprung together at the heels, and are too narrow for the mouth. If they are re-vulcanized, they are thereby made still narrower, and are, thereafter, in many cases, not capable of being worn with comfort. If they are heated sufficiently to soften the rubber and are then widened, the beneficial effect upon the fit will be quite apparent.—DR. SNOW in *Practitioner and Advertiser*.

A HINT.—We sometimes, in our efforts to make use of roots for crowning, find these so covered with gum tissue that they are not seen, and only known to be present by the indications which point to the presence of a root. In some cases we snip off the overlying gum with the sharp pointed curved blade scissors.

When the gum has ceased to bleed, we pack base plate gutta-percha, depending on the teeth being narrower at the necks to hold this in place. At the next visit the root can be distinctly seen but is not in a condition yet, to bend a ferrule or band around it. Our next procedure is to wrap ligature silk or gilling thread two or three times around the root, and then push this down well on the gum around the root and tie firmly, and hold it in place by replacing the pink gutta-percha, wedging it, as before, between the adjoining teeth. At the next visit, the root is so clearly marked and the gum so well pushed away from it that there will be not the least difficulty in preparing the root or fitting the ferrule accurately, and this without the least wounding of the gum. It may happen that at first the gilling twine cannot be wrapped around the root but *once*, and at the next visit but *twice*, but by perseverance in this way, the root can be so thoroughly exposed and the gum so well pushed away that it becomes a pleasure to the operator to fit the ferrule and no pain to the patient while he is doing this.—DR. T. F. CHUPEIN, *Off. & Lab.*

SOLVEOL, A NEW DISINFECTANT, is a concentrated cresol solution of a neutral character effected by sodium cresolate. It mixes with all kinds of water, even calciferous, and forms with them clear solutions resembling surgical carbolic acid, but of much more energetic and reliable action; it is many times less poisonous than a carbolic acid solution of equal disinfecting power.

According to Dr. Hammer (Hygien. Inst. in Prague) the 0.5% solveol solution is sufficient for surgical and medical purposes in aseptic operations; according to Hueppe 0.1% is sufficient. "With 0.5% solveol solutions more energetic actions on bacteria are obtained than with 2.3 and partly even with 5% carbolic solutions." (Hammer.)

The advantages of solveol are as follows:

A. It is preferable to carbolic solution: 1. Because solveol is more efficient with a lower concentration; 2. Because solveol is much less poisonous and much less corrosive; 3. Because solveol is cheaper, solveol being miscible with water.

B. It is preferable to sapocarbolic, creoline, lysol, etc.: 1. Because, not containing any soap, it does not cause the hands to become slippery; 2. Because it is almost odorless; 3. Because it

gives clear solutions of neutral, not alkaline reaction, with any kind of water; 4. Because its composition is always constant.

C. It is preferable to sublimate on account of the following quantities: 1. Unimpaired efficiency even in albuminous liquids; 2. Relative harmlessness with regard to toxic effects; 2. Mixibility with all possible kinds of water.—*Zeitschrift d. Oesterreichischen Apotheker-Vereins*.

PULP STONES.—From a paper read at N. J. Society, Dr. OTTOLENGUI draws the following conclusions: *First*. Intense pain, without decrease of sensibility, following the use of arsenic, is a reasonable sign of the presence of pulp-stones.

Second. Intense pain following a probationary filling, whether immediately or after an extended period of time, there being sensibility in the dentine, and no symptoms indicating other disease, the pulp not being exposed, pulp-stones are to be suspected.

Third. Where it is suspected that pulp-stones are present, arsenic must not be used, and if it has been used once, it must not be repeated. The pulp must be extirpated under an anæsthetic.

Fourth. Where pulp-stones have been removed till soft tissue is reached, arsenic must not be used for controlling the sensibility of the remainder. It is preferable to use an anæsthetic.

Fifth. After the removal of pulp-stones, it is not safe to insert a permanent filling immediately; the canals may be filled, but should be covered with a readily removable probationary filling.

Sixth. If a pulp be exposed, capping must produce either its death or else set up an inflammatory action which will be followed by deposition of pulp-stones, which will ultimately strangle the pulp. It is therefore inexcusable to cap any pulp which has bled, especially in young patients.—*International*.

TO AVOID THE TOXIC EFFECTS OF COCAINE.—1. The injections should be made with antiseptic precautions; the solution made with boiled or distilled water when about to be used. On filling the syringe the point should be rolled with cotton in order to filter the solution which passes into the syringe.

2. The injection should not be made when the patient has an empty stomach.

3. The patient should be in a horizontal position.

4. The patient's clothes should be loose.
5. He should be under the influence of alcohol, given a half-hour in advance.
6. Persons who are suffering from a disease of the lungs, heart, or kidneys, or have any cachexia, should be carefully watched and in such cases the dose should not exceed one cgm.
7. Women are more susceptible to the action of cocaine than men.
8. As antidotes one may administer inhalations of ammonia, acetic acid, or nitrite of amyl; effusions of cold water to the back and chest. Any alcoholic may be given, to which may be added five to ten drops of ether.
9. The nitrite of amyl may be administered in pearls, which are broken, when desired for use.
10. The syringe-needle should be introduced with the quantity measured in order to avoid injecting the solution into a vein and the pain of the puncture.
11. The hydrochlorate of cocaine, in doses of five mgms. to two cgms. produces local anæsthesia sufficient to perform painlessly minor surgical operations.—Dr. AMOEDO, *L'Univers Med.*

ENLARGEMENT OF THE CERVICAL GLANDS, due to the impaction of lower left wisdom tooth.—Mr. A., age 21, a strong, healthy young man, without any tubercular history, consulted Dr.—— regarding an enlargement of the cervical glands. Dr.——, apprehending dental irritation as the cause, advised him to see a dentist. This he accordingly did. On examination, I found the glands considerably enlarged, painful on pressure, also pain at the angle of the lower jaw. In the mouth, the teeth in the vicinity were found well developed, sound and healthy. The third molar was, however, unerupted, the point of the anterior cusp being visible at the line of the neck of the second molar. On applying pressure to the surrounding parts, pus could be evacuated, having its exit at the erupted portion of the tooth. This symptom, connected with the evident want of space for the reception of the tooth, led me to advise its removal. This the patient acceded to after, on my advice, consulting his medical attendant. The operation of removal was one of extreme difficulty, a considerable degree of resistance being experienced, but it was eventually dislodged with a Coleman's straight elevator. The tooth proved to

be a large, well developed three-rooted molar, measuring from crown to apex fully seven-eighths of an inch. The patient was seen the following day. The jaw was slightly stiffened, and the glandular pain intensified, which was to be expected, being due to the force employed in the removal of the tooth. Three days thereafter, there was a marked diminution of pain and swelling, the general characteristics were favorable, and pointed to a satisfactory and complete cessation of all existing complications.—J. TURNER, *Dent. Record*.

A MOUTH LAMP IN CROWN- AND BRIDGE-WORK.—The following described mouth alcohol lamp will be found a ready and effective means of applying heat for the adjustment or the removal of crowns, bridges, etc., secured in position by means of gutta-percha.

It consists simply of a small homœopathic vial, without a lip, with sufficient cotton thread, or twine, to nearly fill it. One end passes through a groove cut in the cork, forming the wick. To use it, place in the vial sufficient alcohol to saturate the wick. Place the cork in position, allowing the wick to protrude sufficient only to produce, when the lamp is lighted, a very small flame. This flame is so small, and the device so readily handled, that there are but few positions in the mouth where it cannot be so used that the flame is in direct contact with the fixture it is desired to heat, and there held sufficiently long to effect the desired object without causing discomfort. It is surprising how quickly a crown can, by this device, be sufficiently heated to effect its easy removal. Generally, a few seconds only are required, so short a time, indeed, that the same cork and glass vial has been used repeatedly, though the lower part of the flame is in contact with both. The vial should be without a lip, and the cork should protrude but slightly, or a small loop of wire may be inserted in the cork to move it in or out, which regulates the flame much better.

The use of a napkin, either wet or dry, to protect the lips, or to prevent the patient's breath blowing out the flame is, at times, required. The small flame is very easily extinguished; it is, therefore, best to have a larger lamp at hand to relight it, if required. I have had this device in use for some time, and find it useful and effective. Avoid a too free use of alcohol—not

more than enough to barely saturate the wick—a few drops only, are quite sufficient.—DR. N. H. KEYSER, *Items*.

[Dr. Beacock recommends a lamp made from an ordinary medicine dropper, the rubber bulb holding excess of alcohol. The flame may be flashed by compressing the bulb.—ED.]

NEW PUBLICATIONS.

PYE'S SURGICAL HANDICRAFT. First American from the third London edition. Revised and edited by T. H. R. Crowle, F.R.C.S. Complete in one volume of about 600 pages. New York: E. B. Treat, Publisher, 5 Cooper Union, 1892. Price, cloth, \$3.50; leather, \$4.00.

The work before us is a manual of surgical manipulations, minor surgery and other matters connected with the work of house-surgeons and surgical dressers.

The book is divided into ten sections including each a special topic as: The Arrest of Hemorrhage—Apparatus for Restraint and Support—Fractures—Wounds, Ulcers, Burns, etc.—Certain Emergencies, Surgical and General—Anæsthetics—Extraction of Teeth and the Management of Aural Cases—Minor Surgery, etc. Over 300 wood engravings are used to illustrate the text.

The subjects are treated in a clear and concise manner and marginal references assist materially in finding, at a glance, any particular portion of the text. The book is an excellent guide to those for whom it is intended. The whole range of surgery is covered and it furnishes, not only surgeons, but the general medical practitioner a valuable reference book. It is different in its scope from any work we have seen on the subject and is superior in many respects.

BOOKS RECEIVED.

DENTAL JURISPRUDENCE, by W. F. Reh fuss, D.D.S. Wilmington Dental Mfg. Co., Publishers. Cloth, \$2.50; sheep, \$3.50.

MANUAL OF INSTRUCTION IN HARD SOLDERING, by Harvey Rowell. Spon & Chamberlain, Publishers, New York. Price, cloth, 75 cents.

WORKSHOP RECEIPTS FOR THE USE OF MECHANICS AND SCIENTIFIC AMATEURS. First and Third series. Spon & Chamberlain, Publishers, New York. Price, each, \$2.00.

DIED.

Dr JOS. G. CAMERON in the 65th year of his age, on March 5, 1892.

The death of this worthy member of the dental profession of this city [Cincinnati], removes from us one of our oldest members, and the longest in practice of any now practicing in this city. He was one of the last of that group of men who did so much by their skill as expert workmen in gold and silver by utilizing their handicraft in producing fine specimens of gold plate work to replace the lost teeth; and he added improvements in the structure of plates by adding the beautiful rims around the plates, giving at once a finish to a gold plate that marked it as a work of skill which was admired by all at our conventions in days long ago. He was ever ready to appreciate and adopt everything that was valuable in the profession, evincing a warm and active interest in dental college affairs. He was for many years a trustee, treasurer and secretary of the Ohio College. He was comparatively young, dying at the age of sixty-five, his death perhaps hastened from an accident in his practice by wounding his finger with an excavator, causing blood poisoning. He recovered, but the attack left him feeble, and he succumbed to a cold and pneumonia, which at last ended his long and laborious life. He enjoyed a large practice so long as he was able to attend to it, and is missed by a large clientele. He was an honest man, retiring in his disposition, yet active in all matters pertaining to the profession, and was considerate and kind to every member of the profession, ever ready and pleased to give any information to younger members when desired; and we who have known him many years feel that we have lost a friend of the profession, a man that did much to elevate the standard in his special department of dental art. As a citizen he was esteemed; and as a christian he was beloved by the church of his choice in which he had been an officer over thirty years.

To his bereaved wife and family in their great sorrow we tender our deep sympathy; and may the memory of his beautiful life be cherished and imitated by his sons he loved and has left.

Signed, Drs. JAMES LESLIE, }
J. S. CASSIDY, } Com.
M. H. FLETCHER, }

SOCIETIES.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE annual meeting of the National Association of Dental Examiners will be held at Niagara Falls Monday, Aug. 1, 1892, at 10 A. M. All State Boards are invited.

FRED A. LEVY, *Sec'y*.

INDIANA STATE DENTAL ASSOCIATION.

THE thirty-fourth annual meeting of the Indiana State Dental Association will occur June 28, 29, 30, at Lake Maxinkuckee, Ind. The State Board of Dental Examiners will meet at the same place and time. All dentists cordially invited to attend.

G. E. HUNT, *Sec'y*,
Indianapolis.

NORTHERN OHIO DENTAL SOCIETY.

THE thirty-third annual meeting was held at Cleveland, May 10-13, 1892. The following officers were elected for the ensuing year: W. H. Whitslar, Cleveland, President; S. B. Dewey, Cleveland, Vice-President; H. Barnes, Cleveland, Cor. Secretary; L. P. Bethel, Kent, O., Rec. Secretary; Chas. Buffett, Cleveland, Treasurer.

The next meeting will be held at Akron, O., second Tuesday in May, 1893.

ILLINOIS STATE DENTAL SOCIETY.

THE twenty-eighth annual meeting was held at Springfield May 10-13, 1892. The following officers were elected for the ensuing year: E. K. Blair, Waverly, President; C. N. Johnson, Chicago, Vice-President; Louis Ottofy, Chicago, Secretary; W. A. Stevens, Chicago, Treasurer; F. H. McIntosh, Bloomington, Librarian.

The next meeting will be held at Rock Island, second Tuesday in May, 1893.

LOUIS OTTOFY, *Sec'y*, Chicago.

SEVENTH DISTRICT OR SOUTHWESTERN OHIO DENTAL SOCIETY.

THE annual meeting was held in Washington C. H., Ohio, Tuesday, May 17, 1892. President O. N. Heise, of Cincinnati, in the chair. After the President's annual address, papers were read by Dr. J. Taft, Cincinnati, on Some Tumors of the Mouth; Dr. L. E. Custer, Dayton, on Tobacco Chewers' Dental Caries. They were discussed at length by the members as were also questions in regard to the New Dental Law, Ames' copper phosphate, and Secondary Inflammation arising from the use of arsenic in devitalizing pulps. We hope to present the papers to our readers in a future number of the JOURNAL. Next year's meeting will continue for two days at Camden, Preble county, the southeastern Indiana dentists being invited to a joint meeting.

Hereafter the Executive Committee, as elected annually, together with the officers will be constituted a Board of Directors for the transaction of all business. No business can be brought before the society except through, or on an appeal from, the Board and then it must be by a written request signed by three or more active members. This will greatly expedite matters and leave full sessions for discussions, etc.

The officers elected for next year are, President, B. F. Johnson, Camden; Vice-President, J. F. Dennis, Washington C. H.; Secretary, J. R. Callahan, Cincinnati; Treasurer, C. I. Keely, Hamilton.

Executive Committee—Chairman, W. H. Sillito, Xenia; L. E. Custer, Dayton; Chas. Welch, Wilmington.

Among the members present we noticed from Cincinnati—Drs. J. Taft, H. A. Smith, C. M. Wright, O. N. Heise, J. R. Callahan. Washington C. H.—*E. C. Hamilton, J. F. Dennis, *Jas. Silcott. Portsmouth—*C. P. Dennis, *W. D. Tremper. Dayton—L. E. Custer, C. W. Story, W. E. Tizzard. Xenia—W. H. Sillito. New Vienna—W. D. Phillips. Camden—B. F. Johnson. Hamilton—C. I. Keely. Wilmington—Chas. Welch. London—*H. M. Chaney. Columbus—*Otto Arnold, *W. J. Jones.

* Elected at this meeting.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

EUCALYPTUS OIL has come into such demand that over 20,000 pounds were sent to England from California last year.—N. Y. *Independent*.

DR. B. F. JOHNSON, of Camden, is in no way connected with the *Camden Medicine Company* whose circular we printed, as a curiosity, some time ago.

ELECTRO-PLATING WITH ALUMINUM, it is said, has been accomplished by a Cincinnati establishment. It was in the same city that a successful method of plating with iridium was discovered a few years ago.

BROTHER CROUSE of the Dental Protective Association, having conquered the International Tooth Crown Company is about to turn his attention to the Dental Trade Association. He will have his hands full now.

CONGRATULATIONS DR. MOLYNEAUX!—Assistant U. S. Treasurer Sam Bailey is a grandpa now. He gets that distinction by the birth of a daughter to Dr. and Mrs. Molyneaux, of Walnut Hills, May 13th.—*Cin. Com. Gazette*.

WHEN DOCTORS DIFFER, ETC.—*Mother*—"You haven't cleaned your teeth this morning." *Small boy*—"Dr. Pullem says the time to clean teeth is at night." *Mother*—"But you never clean them at night." *Small boy*—"No'm. Dr. Fillem says the best time is in the morning."—*Good News*.

THE BUFFALO (N. Y.) DENTISTS are all torn up about the honorary degrees of Doctor of Dental Surgery granted by the University of Buffalo to A. P. Southwick and F. E. Howard, two well known practitioners, with the apparent object of making them eligible to serve the University as professors in the newly created department of dentistry. It is a very pretty quarrel, as Sir Lucius O'Trigger would say, and no doubt will receive proper attention when the college makes application for admission to the National Association of Dental College Faculties.

A CRUEL FATHER.—Dr. J. Ormsby Donough is wanted by the Police and the Humane Society. It is thought he has left town to avoid arrest.

A complaint was made to the Humane Society that Donough had administered such severe corporal punishment to his six-year-old son that he broke the child's leg.

Dr. Donough was arrested before on a similar charge, when he was accused of throwing his daughter to the floor in such a manner as to cause her to bite her tongue. He was fined for that offense.—*Cin. Com. Gazette*.

DR. W. W. ALLPORT, of Chicago, while visiting his son in Portland, Oregon, was given a reception at The Portland May 13th, by the leading dentists of the city. At Dr. Allport's suggestion the formation of a State Dental Society was undertaken with Dr. J. R. Cardwell chairman of the temporary organization, and Dr. L. E. Hibbard, secretary. Drs. Cardwell, Welch and

Knapp were designated a committee to issue a call for a meeting of the dentists of the State. Those present at the dinner were Dr. W. W. Allport and his son H. W. Allport, Drs. J. R. Cardwell, J. Welch, S. J. Barber, C. R. Templeton, L. E. Hibbard, W. B. Knapp and E. G. Clark.

IN THE DENTIST'S CHAIR.—One of the keenest observers of human nature I ever met is a dentist, who has had a wider experience in the surgical branch of his profession than any other member of it. More than two hundred thousand persons have slept for a moment in his office chair during the last thirty years. He made this observation to me not long ago: "Give me a regiment of women and I will whip a regiment of men. No man can stand by that chair and watch day after day the effects of anesthetics on human minds and bodies without learning that there is a God. In the unconscious moments of those who slumber in that chair are shown glimpses of every variety of human passion and predilection. Man is the inferior of woman in both physical and moral courage. Few men confess cowardice, few women profess the courage they really possess."

A queer place in which to study moral standards I admit, but somehow human nature drops all disguises when it sits down in a dentist's chair. In the most unexpected times and places come the most valuable revelations of the moral purposes of our fellow men. A word or a look is often of greater significance than a sermon or a book on moral philosophy.—H. R. CHAMBERLAIN'S "American Morals" in *March Chautauquan*.

ANOTHER DENTAL COLLEGE.—One of the most important of the actions of the Council of the University of Buffalo, was the final establishment of the department of dentistry, a step which has been contemplated for thirty years, and which makes the teaching in all departments of medicine complete. The Council voted unanimously that the dental department should be constituted, teaching to begin at the next term, and appointed the following gentlemen as professors:

William C. Barrett, Professor of the Principles and Practice of Dentistry and Dental Pathology.

Alfred P. Southwick, Clinical Professor of Operative Technics.

Herbert A. Birdsall, Professor of Dental Materia Medica and Therapeutics.

Franklin E. Howard, Professor of Operative Dentistry.

These gentlemen will associate with themselves such others as may be deemed advisable, and will at once issue announcements. Dr. J. Edward Line, of Rochester, editor of the *Odontographic Journal*, a well known histologist, a dentist of eminence and a writer and speaker of acknowledged ability, has already accepted a chair in the new college and will lecture regularly. A number of other gentlemen well known in the dental profession have signified their willingness to accept positions.

The University has devoted to the use of the dental department a large share of the west wing in the new building, now in course of erection upon High street, so that it will be better housed than often happens to be the lot of a similar institution. With the trinity of departments, medicine, dentistry and pharmacy, Buffalo may congratulate herself upon having a university that afford opportunities for such medical training as few cities can boast of.—*Buffalo Commercial*.

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CONTRIBUTIONS.

MICRO-ORGANISMS OF THE MOUTH.*

BY JO H. LINSLEY, M.D.,

Prof. of Pathology and Bacteriology, Medical Department, University of Vermont; Pathologist to the New York Infant Asylum, etc., Burlington, Vt.

I HAVE many times had the misfortune to be obliged to seek the aid of members of your profession, and the treatment I have sometimes been subjected to by them, while very generally resulting in my benefit, was of a very intense and extractive nature.

I never anticipated being especially called upon to attempt an elucidation of any subject having a direct bearing on the details and operative work, incident to the practice of your profession, and even an intelligent discourse on the theme of which I speak to-day, would, but a very few short years ago, have been practically impossible and excited but little interest.

But when a representative of your society, four or five weeks ago, solicited of me a paper on "Bacteria of the Mouth," to be presented at the present session of your association, I consented

* Read before the Vermont State Dental Society, March, 1892.

to his proposition with pleasure, more especially as I had intended, shortly, to undertake some bacteriological investigations in this direction. I very much regret the limited amount of time I have had, in which to properly conduct many practical researches of some of the surprisingly numerous varieties of micro-organisms which either find their habitat in the oral cavity, or are simply resting strangers, or *loungers*, as I might say, in this locality. While I shall exhibit to you some flourishing so-called "pure cultures" of bacteria, whose ancestors were removed from carious teeth, inflamed gums, and improperly cleansed "*grinders*." I have, necessarily, been obliged to resort to the latest text-book on the subject, and to the various papers and articles which have recently appeared in medical and dental periodicals, both domestic and foreign, for the recognized varieties of germs infesting the mouth, their relatively respective frequency, etc.

To accomplish more than this, under the circumstances, was impossible, and the procuring of even the scanty material which I shall present to you, exacted much more time and labor, than you might, at first, imagine.

It is an interesting fact in the history of bacteriology, that the first authenticated record and drawings of bacteria, were made from micro-organisms discovered in mucus from the human mouth, by Leewenhoek, in 1683. From this time, until about 1860, but little progress was made in this subject, and the rapid strides, and the accumulation of important data accomplished in recent years, has been very largely due to the improvement and perfecting of optical instruments. The fortunate discovery, by Koch, of the use of artificial, solid, transparent food-media, was of scarcely secondary importance in the development of bacteriology,* by facilitating the separation, culture, and examination of germs.

A brief description of the more common culture media used for separating and growing organisms of the mouth, together with the methods employed in obtaining pure cultures, will be of interest to those of you who are unfamiliar with the details of bacteriological investigations.

Nutrient Gelatine.—This is composed of beef-juice, or beef extract, to which is added from 5% to 20% of best French gela-

* "Micro-organisms of the Human Mouth."—MILLER.

tine, 1-10% dried peptone, and 1-20% common salt. The reaction must be neutral, or very slightly alkaline. The addition of 1% to 2% of sugar improves the medium for the growth of mouth-bacteria.

This material is easily prepared,* and is largely employed, especially for plate, or dish, cultures. It is unfit for use in the incubator, as the gelatine is liquefied at temperatures above 25° C. The characteristic growth of many bacteria is better exhibited on this substance than on the following.

Nutrient Agar-agar.—This is prepared† similarly to the foregoing, only that 1% to 2% of agar-agar is used, instead of the 5% to 20% of gelatine. (For detailed directions for the preparation of these media, reference to the text-books on Bacteriology is advised.)

Boiled potato.—This is a very simple and valuable nutrient medium. Any sound potato can be used, excepting those which crack open, or become mealy, on boiling. The potato is carefully washed and scrubbed with a stiff brush (an ordinary nail-brush answers very well), and the “eyes,” and any unsound portions removed; it is then soaked for one hour in a 1:1000 bichloride of mercury solution, and finally boiled in a steam sterilizer, or cooking “steamer,” for one-half or three-quarters of an hour. It is then placed in a moist-chamber, or covered glass dish, which has been sterilized, and in the bottom of which has been placed a piece of filter, or blotting paper, slightly moistened with a 1:2000 bichloride solution.

If the proper precautions have been observed in their preparation, potatoes thus treated will remain germ free indefinitely, and can be used any time at a moment's notice, for the planting of material from which cultures are desired. Many bacteria exhibit their most characteristic growth on this medium, and but few germs are known which refuse to exist on it.

Occasionally a micro-organism is met with which requires for its full development, a different soil from any of the three media just enumerated. In such cases other substances are used, such as sterilized blood-serum, starch-paste, boiled hen's egg, etc.

Liquid media are also employed in the cultivation of micro-organisms generally, as well as those from the mouth, but more

* It can be obtained already prepared by Eimer & Amend, 205, etc., Third ave., New York.

† This can also be bought of the same firm.

especially for studying the progress and phenomena of putrefaction, fermentation, decomposition, etc., occasioned by the action of bacteria. Such media are bread-juice, peptonized beef-bouillon (to which has been added 2% sugar, with, occasionally, the addition of starch), urine, milk, watery extracts of various plants or grains, juice of fruits, saliva (to which some nutritious substance has been added), etc.

Pure cultures are obtained by transferring a minute quantity of a "colony" from a glass plate, or Petri dish, on the end of a sterilized platinum needle, to a tube of nutrient medium, where it is "planted," by either thrusting the needle directly through the center of the solidified culture medium in a test-tube, then twisting the needle a few times between the thumb and fingers, and carefully withdrawing same (the so-called "thrust," "puncture," or "stab" culture), or by drawing the point of the impregnated platinum needle, which has been slightly bent, across the *surface* of the medium, which has been allowed to solidify in the tube in an oblique direction (the so-called "scratch," or "surface" culture).

Considerable work and investigations in this line can be done by the practicing dentist, or physician, without investing in an expensive outfit; *at least* it is quite practical for any practitioner, who desires to determine the existence of any particular species of micro-organisms in certain cases, to *himself* inoculate a prepared tube of gelatine, or agar, with the suspected material, and send the same immediately to a bacteriologist for further treatment, examination, etc. The following is a procedure I have employed in the investigations of this subject, and is, as you will admit, exceedingly simple and quite satisfactory. I use the glass phials of various sizes, used by some wholesale drug houses for holding physicians' samples of pills, parvules, tablets, etc. These phials are sterilized, filled for from 1 to 2 ctm. with sterilized gelatine, or agar, and their mouths closed with the ordinary cotton-wool plug. When a patient comes under treatment, having a lesion of the mouth, teeth, or gums, the bacteria of which it is desired to cultivate, the dentist sterilizes an excavator, by passing it back and forth through the flame of his spirit-lamp, or Bunsen burner, a few times, and carefully removes a bit of material from the mouth and pushes it just into the gelatine in the prepared bottle. The same day, at the first opportunity, this is

sent to me, and dish-cultures, etc., are subsequently made from the specimen.

To review *all* the varieties of bacteria which have thus far been described and obtained (over 100 species) from the buccal cavity, with their individual peculiarities, etc., would require several papers, each fully as long as the present one. I shall, therefore, confine myself to the consideration of a few of the more prominent and frequently occurring varieties, and afterward, offer some comments, applicable, in a *general* way, to the subject.

It has been customary for many observers to classify every thread-producing germ, which they find in the buccal cavity, as "leptothrix buccalis." This is to be deprecated, as there are several bacteria of the mouth which form threads.

The name "leptothrix buccalis" (like "bacterium terms"), designates no particular organism, possessing peculiar characteristics, and the name no more deserves to be retained than "denticola," "Buhlmann's fibres," etc.; the less so since it has always been the expression for an obscure and erroneous conception. Morphologically, as well as physiologically considered, leptothrix buccalis has been regarded as a veritable wonder. It has been said to perforate and split up teeth, its elements to cause all kinds of diseases in the oral cavity, to penetrate into the lungs, the stomach, and other parts of the body, and everywhere to manifest a destructive influence.

As absolutely nothing was known concerning the biology and pathogenesis of this organism, all sorts of wonderful properties were ascribed to it. It is therefore high time to banish this confusing name from bacteriological writings. (Miller.)

Miller suggests the name of leptothrix innominata for those germs of thread-like growth, whose biology is too ill understood, to place their relation to other mouth-bacteria.

Let us, for a moment, consider what the inducements are which the mouth, as a whole, offers to wandering, homeless "bugs," that they so readily and promptly enter these premises, and not only obtain their own individual livelihood, but, uncereemoniously, at once proceed to increase the members of their households.

As pertinently stated by one observer,* the mouth forms

* Woodhead—"Bacteria and their Products," p. 337.

"a kind of hot-house, or forcing-ground, for their cultivation." Dr. Bergtold* says: "If one could find a perfectly sterile mouth, he could also see at once that the opportunities of seeding it, so to speak, are excellent, in that every individual is more or less constantly taking in air and also food and drink through that channel, and in both these actions there are received numberless spores and other forms which, later, give us growths of bacteria.

The organic and inorganic substances found in the mouth, which may serve as nutriment for micro-organisms, are the following†:

1. Normal saliva;
2. Buccal mucus;
3. Dead epithelium;
4. Dental tissue softened by acids;
5. Exposed pulps;
6. Exudations of the gums, conditioned by the irritation of tartar, etc.;
7. Accumulation of particles of food.

The carbohydrates and albuminous substances furnish the greatest nutriment for bacteria in the mouth, and are almost constantly present there at all times. They are found between the teeth, in cavities in the teeth, and also upon their surface, and in any depressions.

Perfectly pure, mixed, human saliva has no toxic properties, and in those cases which have been reported by Pasteur, Valpian, Gautier and others, in which "unadulterated human saliva caused more or less morbid phenomena," it must be suspected that the samples used *were*, in some manner, contaminated.

Mixed with the various deposits of bacteria, etc., always present in the mouth, saliva may possess most energetic toxic properties, having many times proved fatal even as abundantly proved by numerous recorded cases.

It is also probable that the saliva has far less antiseptic properties than is often ascribed to it, and the undisturbed growth of micro-organisms in the oral cavity, would seem to sufficiently support this view.

The diastatic action of the ptyalin of the saliva, in changing

* "The Mouth as a Center of Infection," W. H. Bergtold, M.D., *Dental Cosmos*, Vol. 43, No. 2.

† "Micro-organisms of the Human Mouth," Miller, p. 37.

starch into a variety of sugar, variously termed dextrose, maltose, or ptalose, which, as soon as formed, produces an excellent culture-medium for those germs concerned in the process of fermentation.

According to Miller,* there are six different micro-organisms which are almost invariably present in *every* mouth. They are:

1. *Leptothrix innominata*. This occurs as thin, more or less zig-zag threads. Found in the soft white deposit on teeth in *every* mouth. Is stained faint yellow by a solution of iodine in iodide of potassium sol., slightly acidulated with lactic acid.

2. *Bacillus buccalis maximus*. Occurs as isolated bacilli, or threads, more often as "tufts of threads." Is the largest of mouth bacteria. Is stained brownish-blue more or less deeply, with the iodine solution.

3. *Leptothrix buccalis maxima*. This occurs as long, thick, straight, or curved filaments, somewhat similar to bacillus buccalis maximus. Is found in the mucus deposit upon teeth. Is not stained by the iodine sol.

4. *Jodococcus vaginatus*. Occurs singly, or in chains of from four to ten cells. Chains have a sheath, and cells appear as flat discs, or as more rounded, even squares. Occurs in all unclean mouths. Not stained with the iodine sol.

5. *Spirillum sputigenum*. This is seen as rods, enrvd like commas, having very active spiral movements. Found in all mouths, especially in unclean ones. Is the soft deposit on the margin of inflamed gums of dirty mouths. Stains more readily than the foregoing.

6. *Spirochaete dentium* (denticola). Found as spirals of very irregular windings and unequal thickness. It is found under the margins of the gums, when covered with a dirty deposit and slightly inflamed, or, in other words, gingivitis marginalis.

There are a great many mouth bacteria proper, not *invariably* found in *every* mouth, which are uncultivable, and whose pathogenesis is unknown. Among them Miller found a bacterium of enormous dimensions, in the mouth of a dog suffering from pyorrhœa alveolaris, which he has called leptothrix gigantea. There are also three or four kinds of germs from the mouth which give a blue, or violet reaction with iodine, and from twenty

* "Micro-organisms of the Human Mouth," Miller, p. 69.

to forty varieties which are cultivable, partly non-pathogenic, partly of unknown pathogenesis. The oral cavity is a favorite locality for many varieties of chromogenic, or color-producing bacteria. These are widely diffused in nature, and occur abundantly in water, in the air, and various places.

In the mouth they are less numerous than the colorless germs, and probably on account of this preponderance, the color is not visible when in this locality, but is readily developed during the culture of these micro-organisms on many of our culture-media.

Among the colors produced by different species of mouth bacteria, Miller gives a yellow, produced by at least eight kinds of bacteria: *green* (by 5), *red*, or reddish (by 3), *blue*, *black*, *brown*, *orange*, etc.

To study any of the bacteria, particles of matter containing them, must be taken from the mouth and mounted directly on cover-glasses, after which they may be examined fresh and unstained, or (after being carried through the flame of a Bunsen burner or spirit lamp *three times*) be stained and mounted permanently.

Many of the germs that have been found in the oral cavity are, of course, accidentally present, having been deposited just previous to an examination, and which would only remain a short period.

The micro-organisms I have just mentioned as being termed "Mouth Bacteria Proper" by Miller, are found in *all healthy* conditions of this cavity, but the variety and number is more or less greatly augmented when any morbid condition whatever occurs, such as inflamed gums, wounds, etc., of the mucous membrane of the mouth, dental caries and ulcerations, etc. Of these Miller found, by inoculation experiments on mice, rabbits and guinea-pigs, many germs, the inoculation with which produced either death, or a pathological condition of the animals thus treated. These he calls "*Pathogenic Mouth Bacteria*." Of the varieties separated, the following were studied more in detail:

1. *Micrococcus gingivæ pyogenes*;
2. *Bacterium gingivæ pyogenes*;
3. *Bacillus dentalis viridans*;
4. *Bacillus pulpæ pyogenes*.

The first of these micro-organisms, *mic. ging. pyog.*, was

found several times in a case of pyorrhœa alveolaris, in the deposit around the teeth of a very filthy mouth.

The second, *bact. ging. pyog.*, was found in the same mouth as the foregoing, and also in a suppurating tooth-pulp of a second person.

Bact. dent. virid., the third variety, was found in the superficial layers of carious dentine. In cultivation upon gelatine, this bacterium produces a beautiful opalescent green coloring matter which it imparts to the gelatine.

The fourth bacterium, *bact. pulp. pyog.*, was found in a gangrenous tooth-pulp. The inoculating material used, was pure cultures of the different germs, mixed cultures, and gangrenous pulps, and the inoculations were made into pockets beneath the skin of the animals and by subcutaneous injections, and injections into the abdominal and thoracic cavities. The pockets were made as usual, at the root of the tail, and the injections with sterilized syringes.

Before giving the results of these inoculations, let us see what are the conditions necessary to be fulfilled, in order to establish unrefutable proof of the pathogenic nature of any given bacterium. According to Koch, a micro-organism must comply with the following requisitions, before its pathogenic character is determined, the so-called "*Koch's laws*," or "*rules*":

First,—It must be proved to be present in all cases of the disease in question.

Second,—It must further be present in this disease and in no other, since otherwise it could not produce a specific definite action.

Third,—A specific micro-organism must occur in such quantities, and so distributed within the tissues, that all the symptoms of the disease may be clearly attributable to it.

Fourth,—After removal from the body of an affected animal, and its growth in pure culture, the inoculation of the latter into susceptible animals, must produce the disease in question.

Miller's inoculations were followed by either local redness and swelling, abscesses, suppuration and gangrene of adjacent tissues, blood poisoning, and in many cases by death from septicæmia, peritonitis, pleuritis, etc.

Inoculations with mixed cultures proved more dangerous than when pure cultures were used, and still more effective when gangrenous pulps were used than with mixed cultures.

The diseases caused by the pathogenic bacteria of the mouth, Miller considers under six heads, according to the point of entrance of the infection :

1. Infections caused by a breach in the continuity of the mucous membrane, brought about by mechanical injuries (wounds, extractions, etc.). These lead, either to local or to general disturbances.

2. Infections through the medium of gangrenous tooth-pulps. These usually lead to the formation of abscesses at the point of infection (abscessus apicalis), but also sometimes to secondary septicæmia and pyæmia with fatal termination.

3. Disturbances conditioned by the resorption of poisonous waste products, formed by bacteria.

4. Pulmonary diseases caused by the inspiration of particles of slime, small pieces of tartar, etc., containing bacteria.

5. Excessive fermentative processes, and other complaints of the digestive tract, caused by the continual swallowing of microbes and their poisonous products.

6. Infections of the intact soft tissue of the oral and pharyngeal cavities, whose power of resistance has been impaired by debilitating diseases, mechanical irritations, etc.

7. Possible infections by the accumulations of the excitants of diphtheria, typhus, syphilis, tuberculosis, etc.

DENTAL CARIES.

It has been proven, beyond doubt, that decay of the teeth is caused by two different processes, namely : (a) chemical, (b) parasitical.

The first is a decalcification of the enamel, or dentine, or both, caused by the presence of acids in the mouth, which have been formed from the fermentation of starch and saccharine substances, resulting in a softening of these tissues, after which these latter form an excellent food-medium for many varieties of bacteria.

The prevention of dental caries depends, first of all, on strict cleanliness of the mouth, the importance of which cannot possibly be overestimated, the details necessary for the proper fulfillment of the same, it would be superfluous for me to suggest to you. Undoubtedly good stiff tooth-brushes and plenty of clean water, stand at the head of all measures of this nature. The

next prophylactic means is the intelligent use of proper antiseptics.

By far the most perfect germicide known, that can be at all employed in this connection, is the bichloride of mercury, but the use of this substance is not without danger. It should not be used as a wash for the mouth in solutions of greater strength than 1 to 2000, and even then, care must be exercised in its application. Other antiseptics which have been recommended for the oral cavity, are salicylic acid, strength of 1:200, or 1:350, listerine, wintergreen oil, and like aromatic substances are suggested.

In this connection might be noted the germicidal properties of tobacco, either the juice of the leaf, or the smoke of the burning leaves. Certain it is, from results obtained by many experiments and observations, that tobacco-juice, or smoke, very speedily destroys bacterial life, but I would not, on this account, advocate its use, as the evil results of excessive indulgence in the "weed," more than counterbalance any possible benefits resulting from its antiseptic action on micro-organisms of the mouth.

In discussing the subject of infection, attention should be directed to the danger which exists from the spread of infectious forms of bacteria that are liable to be present in the mouth in various directions. It is not difficult, under certain circumstances, to excite an inflammatory process in the middle ear, the transmission of septic germs taking place through the eustachian tubes; similar results may also occur from pyogenic bacteria being carried from the mouth to the throat, lungs, parotid gland, antrum, and even to the brain, as stated by Bergtold.

When it is considered that of all diseases of a parasitic nature, to which mankind is susceptible, dental caries is by far the most frequent, the possibilities I have just mentioned, cannot be charged as being the improbable and unlikely speculations set forth by one who is "cranky" on the subject.

Upon reviewing the various literature on this question, especially those portions of it which refer to the dangers of infection between the dentist and his patient, the speaker was much surprised to find no advice offered to the dental profession by competent bacteriologists, as to the considerable (and oft-times *great*) danger present, to the patient, by pathological conditions the dentist *himself* may be suffering from at the time of operating, and to point out the necessity of establishing, by legislative

measures if required, laws, or statutes, which would prevent the occurrence of such dangers.

I refer more particularly to the jeopardy in which human life is placed, when people are subjected to treatment by a practicing, *tubercular* dentist. This may seem, to many of you, as a bit of superfluous advice, and you may retort that such a circumstance is beyond the bounds of possibility, but I assure you, *I have seen a tubercular member of your profession practicing daily on unsuspecting, or ignorant, patients.*

My experience with dentists has been very limited, and therefore I am not in a position to make any assertion as to the frequency of such pernicious and dangerous proceedings; but the very fact that my slight personal observations resulted in the detection of *one* such case, naturally suggests a possible more common occurrence of tuberculosis in practicing dentists than might be supposed. Since commencing the work incident to the preparation of this paper, one of the local members of your profession has detailed another case, which was under his own personal observation, of a *tubercular, practicing dentist.*

The *greatest* danger, under such circumstances, *is not*, as some of you might imagine, in the infection of the patient by the transmission of the germs through the medium of the breath of the operator, but in the reception of tubercular material, which becomes dry, on the handkerchiefs, clothing, linen, or instruments, of the dentist. The prevention of such desiccation is so extremely difficult and impracticable as to be discarded without serious consideration, if such (prevention) be presented as a possible prophylactic measure, to enable the victim of this malady to continue his professional work until physically unable to do so on account of the inroads of the disease.

It is not generally known that bacteria do not float in the atmosphere in the moist state, but only do so after desiccation, and then probably to no great extent, unless aided by more or less strong currents of air.

Tuberculosis is now almost universally considered to be an infectious disease, and of so contagious a nature that I candidly believe we shall, many of us, see the day when attention to preventive measures against possible infection from cases of this disease is as regularly insisted upon, as are the sanitary requirements in cases of small-pox, yellow fever, and typhus fever (with

the exception of somewhat less vigorous quarantining) at the present day. The period in which to accomplish this much desired treatment of tubercular cases, will depend upon the rapidity with which the laity, and *professional men* even, become educated to the full comprehension of the single and *sole* cause of the affection, the tubercle bacillus, and the proper realization of the benefits to be derived from the adoption of such measures. And to the intelligent efforts and advice of the members of the medical profession, as well as to the great aid which *you*, members of the dental profession, can give, by embracing each and every opportunity to inform your patients, especially influential citizens, as to the true character of tuberculosis, must the accomplishment of this end very largely devolve.

Of all the various ways by which tubercle bacilli find entrance into the human body (such as from the surface of the skin through wounds, by contusions, cuts, or otherwise; from the ingestion of milk and flesh from tubercular cows and animals, etc.), infection by inspiration—by the entrance of the dried germs through the mouth, and so on to the lungs—far surpasses in frequency all other methods of transmission. And this can only be accomplished when the medium on which the micro-organisms have been discharged from the body, dries, or disintegrates, into powder or dust. For this reason the most dangerous source of infection is from handkerchiefs, or cloths, on which the sputum has been received (unfortunately a too common procedure), and on which it becomes dry in an exceedingly short time. Consequently by merely preventing the sputum of phthisical persons from drying, the most important kind of infectious matter may be rendered harmless.

The first contradiction I have seen by competent pathologists (who acknowledge the tubercle bacillus as the essential cause of tuberculosis), to the statement that the *commonest* source of infection is the inhalation of dried bacilli from handkerchiefs, linen, clothing, dust from the floors and ceilings of rooms, previously occupied by tubercular subjects, etc., was recently made by Dr. J. West Roosevelt, of New York.*

Dr. Roosevelt maintained that "there was much more likelihood of getting an overdose of the virulent germs" (of tuberculosis), "through the alimentary tract, either by the ingestion of

* New York Academy of Medicine, Feb. 4, 1892; vide *Medical Record*, Vol. 41, No. 10.

meat, milk, or in children, by putting articles of every nature into their mouths, no matter where they may have lain," than by the manner which I have just described. While recognizing the value of the opinion of so able an authority as Dr. Roosevelt, I am convinced that his statement will not be corroborated by the majority of pathologists and bacteriologists in this country, or on the continent. True it is, that much needless alarm may be created in the minds of the public, by the advocacy of too severe and unnecessary measures of prevention, such as quarantining, etc., by prejudiced and over-zealous investigators, the effect of which would be the unjustifiable persecution of many poor victims of tuberculosis, and as I just suggested, the *only proper* course to pursue in dealing with this question, is by persistently and intelligently educating the minds of the public as to the *exact* status of this matter.

Few pathologists at the present day believe in the theory of heredity as a cause of tuberculosis. It is a fact that the offspring of afflicted parents (especially when the mothers), often regularly develop, sooner or later, the disease, but the explanation is to be sought in a general impoverished condition of the organism, as indicated by enfeebled assimilative and nutrient powers, which are quite sure to follow as the inheritance from unhealthy progenitors.

What I have just said in regard to transmission, naturally leads to the most interesting and important problem in bacteriology, namely, that of *immunity*; and I ask your indulgence for a few moments, in order to state the theories at this time held, in regard to this subject.

As you are probably all aware, two principal views are advanced to account for the difference of susceptibility, possessed by different animals to the same micro-organism, and also that exhibited by the *same* animal to *different* germs.

I might state here, that immunity is of two principal kinds, to-wit: (a) *natural*, or "in-born"; (b) *acquired*, or "artificial."

The first of the theories of *natural* immunity, is based on the *chemical*, germicidal properties of the blood-serum, and tissue-juices of the body.

The second, or "*Metschnikoff's*" theory, attributes the resisting power which an individual, or animal, may possess, to the so-called "*phagocytic*" action of the tissue-cells of the body, more especially the colorless corpuscles, or leucocytes, of the blood.

Metschnikoff believes the presence or absence of immunity depends on the ability, or inability, of the cells of the body, to devour and destroy the bacteria. Such ability may be natural, or acquired. In the latter case, the cells, where they have once had the opportunity of devouring attenuated micro-organisms with a milder poison, which nature enables them to withstand, are so far accustomed to it, that they can devour the most virulent material with impunity. This can be effected both by gradual adaptation, and also by a kind of selection, in which only the strongest, most vigorous cells remain and transmit the acquired faculty to their descendants. The leucocytes are but short-lived cells. A permanent resistance of the organism to a disease which it has once had, or against which it has been protected by inoculation, is, therefore, only conceivable, if we grant to the cells the power of transmitting an acquired property unaltered, to their children, and their children's children. This hypothesis,* as must have been seen, presupposes an extraordinary docility in the protoplasm of the white blood-corpuscles, to which it attributes something like feeling, thinking, and acting, a sort of mental perception. But if we raise no objection to this, there remain plenty of reasons for combatting the phagocytic theory of immunity.

In our opinion, the fact that it is essentially the excretions of the bacteria which produce, or are able to produce, immunity, is difficult to harmonize with Metschnikoff's hypothesis; for if no living micro-organisms are present, none can be devoured to accustom the cells to the poison and prepare the way for resisting more virulent successors. To overcome this difficulty it would be necessary to suppose that the reception of attenuated germs, acts upon the cells only as a specific stimulant, to which they answer by a functional reaction, and that this stimulating power exists in the same degree, and works in the same manner, also, in the bacterial products. The theory of the germicidal action of the blood-serum, or plasma, is, I believe, supported by more weighty authority than is the ingenious one of Metschnikoff.

I have thus forsaken the exact theme of my discourse from a belief that more benefit would be derived from the brief treatment of a subject, at best only partly understood by the highest authorities in this branch, but which one who has devoted much

* "Text-Book of Bacteriology," Frankel, translated and edited by Linsley, p. 146.

time in practical investigations must, necessarily, be better qualified to handle than the average practitioner.

Would the time (and, perhaps, your forbearance also) admit, much profit might be had from the further discussion of bacteria of the mouth, but the vast extent of the subject renders anything but a superficial consideration of it, impossible.

As yet we are only on the *frontier* of the domain of bacteriology, and have only obtained a comparatively few facts, or details, of this most interesting and important kingdom.

What data and facts, investigations into the interior of this boundless area of unexplored territory of micro-organic life, will place us in possession of, time, perseverance, and unremitting efforts will prove.

We certainly have reason to believe that the knowledge of such points, at present undiscovered, together with their practical application, will be of inestimable value to mankind.

In closing, allow me to express my gratification for your kind invitation to participate in the proceedings of your valuable and flourishing society, and to thank you sincerely for the close and courteous attention accorded me to-day, and further, to record my obligations to one of your individual members, Dr. Hodge, who has rendered me every assistance possible in the collecting of material for, and in the preparation of, this paper.

PULP PROTECTION BY CAVITY LINING.*

BY G. F. CHENEY, D.D.S., ST. JOHNSBURY, VT.

IN presenting the subject of pulp protection, I aim rather to bring out a discussion of a much neglected subject, than to offer anything particularly new (I am sure most of us see evidences of this neglect in our daily practice), neither do I intend to discuss pulp capping, but protection of unexposed pulps from thermal influence through metallic fillings by cavity lining.

It is a well known fact that thermal influence will account for the death of thousands of pulps under gold and amalgam fillings, and this is the beginning of a series of disturbances which in time result in abscesses.

I have seen so many abscessed teeth, where, upon removal

* Read before the Vermont State Dental Society, March, 1892.

of the filling, sufficient apparently sound tissue was found to have fully protected the pulp, that I am inclined to believe that in this climate some protection should be used under most of our metallic fillings, especially in approximal cavities of lateral incisors and bicusps where the pulps come so near the surface. Without doubt, if a properly inserted lining had been used in these cavities, the pulps could not have been anything but preserved. Of course it is possible that in a few instances the death of the pulp may have been caused by violence, like a blow, or in biting hard substances.

In teeth where there is the slightest chance for the pulp to become injured by thermal or electric influences the safe course is best. Too much thought and care cannot be given to the protection of the pulp. We must always bear in mind the larger proportional size of the pulp in early life, the possibility of its occupying an abnormal position, the chances of there being a crack or fissure extending to it, and of a point of it coming nearly to the surface. (These chances were very beautifully illustrated in the *International Dental Journal* by Dr. Andrews.)

We must also be able to diagnose the difference between sensitive dentine and tenderness of the pulp. Sensitive dentine responds when excavating over a considerable portion of the cavity walls, does not respond to simple pressure; while, when in near proximity to the pulp, it responds quite as readily to pressure as to the cutting instrument, and is confined so completely to a single point that the danger is at once suggested to the operator.

In deep-seated cavities the necessity of caution becomes greater and the danger of intruding upon pulp territory increases, and, unless carefully protected, thermal changes may prove a disturbing influence which will give rise to more serious trouble.

For the protection of the pulp against these influences I should recommend something with as little conductivity as the case will admit. Scores of different materials have been in use, of these I will only mention a few, namely, varnish and the various zinc plastics, oxyphosphate, oxysulphate and oxychloride of zinc. To me varnish is the most useful. I use the sandarac gum dissolved in alcohol and quite thin. The effect of varnish lining is to leave upon the cavity walls a thin semi-opaque whitish film which is non-conducting, non-irritating, insoluble and more in harmony with dentine than any metallic substance, and

can be used in any cavity no matter how shallow, because of the small amount of space it occupies. The operation of varnish-lining is very simple, having the rubber-dam adjusted and the cavity properly dried, a small pellet of cotton is dipped in the varnish, conveyed to the cavity touching the bottom and walls. Five or ten minutes should be allowed for hardening, which can be hastened by hot air. In some cases I take a piece of tissue paper, dip in the varnish and place over the cavity bottom.

In approximal cavities of the posterior teeth, especially those extending below the gum margin, we sometimes find ourselves in close proximity to the pulp with barely depth enough for anchorage to the filling, I find nothing else will take the place of varnish in these cases for a lining. Varnish will prevent filling material showing through thin enamel walls, which might be very unsightly without it.

Oxyphosphate of zinc is an excellent liner, it is adhesive, does not shrink, and is indicated where the walls of the tooth need strengthening. In deep-seated cavities where undercuts exist, if the enamel is strong it need not be cut away, for when hard cement is carefully packed in its place it forms a support when hard, almost equivalent to dentine. A cavity cut in it to a depth a little greater than enamel, reduces the final filling with gold to an operation of the simplest character, as this cavity has a hard, firm base of cement and a boundary of cement and tooth substance, or of the latter alone. When using an oxyphosphate in deep-seated cavities we must not forget the necessity of protecting the pulp against the effect of phosphoric acid. This can be done by varnishing the bottom, or by using a little oxysulphate of zinc, or a pad of oxide of zinc and oil of cloves.

* Oxysulphate of zinc is probably one of the best pulp protectors which has ever been used, is easy of adaptation and perfectly non-irritating, alike to sensitive dentine and to the dental pulp, and is probably the best material to be used where the pulp is nearly exposed. Place a small amount of the thinly mixed oxysulphate over the bottom of the cavity, allowing a few minutes to set, then finish the lining by covering it with oxyphosphate of zinc.

Oxychloride of zinc, although used quite extensively, is not a reliable liner except when used in small quantity, it being a

* Flagg's *Plastics and Plastic Filling*, page 161.

notable shrinker when used in bulk, which makes it very much inferior to the phosphates when we wish a strengthener for the cavity walls. It is irritating and should not be used near the pulp, except over varnish or oxysulphate. It has been said that oxychloride of zinc permits of no decay in adjoining tooth structure.

In 1888 Dr. Kells, of New Orleans, by the use of the thermostat, an electric instrument, demonstrated before the joint meeting of the American and Southern Dental Societies, at Louisville, Ky., the conductability of heat and cold through filling material.

He says: These may be divided into classes, the metals coming first as the best conductors, the difference between them being slight; next comes the cements, the oxyphosphates being a shade poorer than the oxychlorides; then the gutta-percha come last, although far from being non-conductors, not even equaling enamel. He further says that the oxyphosphates and oxychlorides are such comparatively good conductors of heat and cold, that they should not be used alone for capping pulps, exposed or nearly exposed. That such pulps should be protected by a layer of gutta-percha fully 1-16th of an inch in thickness when possible.

Gutta-percha I have used very little and hardly feel like saying much about it, but from what little experience I have had with it, I should be afraid to use it near the pulp in such quantity as Dr. Kells recommends for fear of expansion; would rather depend upon varnish.

In a paper read before the First District Dental Society of New York last October, Dr. Kells further says: The method of testing the thermal conducting powers of various filling materials, and comparing them in that respect to enamel, is as follows: The enamel of a sound molar was hollowed out into the shape of a cell. Similar cells of the same size were made of gold, tin, amalgam, oxyphosphate of zinc, oxychloride of zinc, red gutta-percha and Hill's stopping. In the apparatus before me the thermostat is connected with the cells of the materials to be tested, and warm water is ready for demonstrating their conductivity. I will first place upon the disk the cell of gold, and filling it with warm water, our ears at once corroborate what we already know as to its conductivity. For no sooner had the gold cell been filled with the water than it at once conducted the heat

to the disk beneath. Replacing the gold by tin and amalgam successively the same results are produced.

The oxychlorides and oxyphosphates will follow, when it is readily perceived that more time is required to heat the disk, thus demonstrating them to be poorer conducting agents than the metals, but far from being non-conductors.

We will next try gutta-percha and Hill's stopping, which prove themselves much poorer conductors; but give them time, and the bell does ring.

Lastly, I place the enamel cell on for demonstration, with the result that sufficient heat to close the circuit is not transmitted to the disk.

From these experiments we may conclude that, contrary to the general opinion held, the oxyphosphates and the oxychlorides of zinc are relatively good conductors of thermal effects, and further, that for protecting the dental pulp nature has provided a shield that has not yet been successfully replaced by dental science.

One other combination I wish to speak of, although perhaps not strictly belonging to the subject.

Some four or five years ago I filled a bicuspid approximately with amalgam, not thinking of any possible chance of thermal trouble. A few days later the patient returned, saying that she could not take cold water or breathe cold air into her mouth without pain the tooth. I tried several remedies, but to no avail; the trouble still continued. Finally I drilled into the crown making a small cavity which I filled with gold in such a manner that the gold came in contact with the dentine of the tooth and the amalgam filling, when the trouble ceased. Since then I have treated one or two other cases in the same manner with equally good results. In a paper read by Dr. Stockwell* before the Odontological Society of New York, he explains this action thus: In regard to the question of thermal influences there is no doubt but that Robinson's foil is a better non-conductor than gold, and this would in part at least account for the immediate favorable results. But there can also be little doubt that the galvanic action set up by this combination taken in connection with the fluids of the mouth, lends an impulse toward the removal of those physiological sensations resulting from thermal influences. There

* *Dental Cosmos*, Dec., 1887, page 737.

can be no doubt at all that the combination of amalgam and gold, when placed in contact with the teeth and fluids of the mouth will create an electric current, and I am assured by competent authority that when a tooth is so filled the current will flow in the following direction, namely, from the amalgam down through the body of the tooth to the pericementum, from it to the saliva, and from it or through it to the gold.

In the *Dental Review* for Feb. this year are given some experiments upon the conducting powers of different materials which are used for filling purposes by Dr. Gilmer of Chicago, as follows: gold, 1000; Lawrence amalgam, $852\frac{5}{11}$; copper amalgam, $702\frac{7}{10}$; tin, 590; oxyphosphate of zinc, $584\frac{27}{100}$; oxychloride of zinc, $525\frac{25}{100}$; artificial dentine, 525; gutta-percha, 520. He also states: A test of the conducting qualities of alloys presents curious results. For instance, if one per cent. of silver, which is represented as a conductor by 1000, be added to gold, the conductivity of the alloy is changed from 980 which gold alone gives to 840. If two metals be combined, one being the best known conductor, and the other the poorest, the latter predominating, the conducting quality of the alloy formed is no better than if it did not contain a particle of the better conductor. All this proves to my mind that combination fillings of gold and tin, or gold and amalgam, should be classed among the pulp protectors.

A PRACTICAL CHEOPLASTIC PLATE.*

BY C. W. STAPLES, D.D.S., LYNDON, VT.

NO ARGUMENTS are needed to convince you of the superiority of metal over rubber and celluloid as a base for artificial plate, and it is equally an established fact that tin has a beneficial influence upon mucous membrane as well as upon dentine.

That there has been some reason why each successive alloy of tin with methods of working has not been practiced in any considerable proportion of cases, has crowded such bases out of the position that they should occupy.

It is my purpose to present a method or rather a combination methods (for which I claim no originality), by which a lower plate, either partial or full, can be constructed in about the same

* Read before the Vermont State Dental Society, March, 1892.

time as that required for rubber, overcome some of the former objection to such cheoplastic plate and still retain the advantages of metal.

Such a plate must be made so as to accomodate gum teeth as well as plain without adding any extra risk of breaking. In the ordinary methods the full lower cases have been too heavy and the gums cracked, either during construction or in after years by the softness of the metal allowing them to move slightly; this we overcome by using rubber attachment. Then in the case of lower partials, the patient was sure to bend and break the plate unless it was made thick and bungling, this we overcome by a wire spring of Dr. W. H. Dorrance invention.

Explanation.—Proceed as usual with impression, model may be poured of plaster, but plaster with asbestos or whiting is safe. To this model fit accurately a piece of piano-wire, No. 14, 16 standard gauge along the arch so as to leave the arch about opposite the first molar; after fitting this wire to the arch bend each end inward at right angles with body of wire, then about $\frac{1}{4}$ inch from first bend make a second by bending wires upward forming an obtuse angle. This is done so that the wire will be held firmly in the plaster of the upper half of the flask; this done take a file and make a notch on each side of wire in the first bend of each end, this is done so that the wire will break in the proper place and easily when wanted; sandpaper the wire to remove all dirt from surface and dip first into muriate of zinc, then into melted tin, this is done so that the metals used for plate will flow along and become attached to the wire; the wire prepared, cover the model to just the extent that you wish the plate to cover the ridge when done. It is now necessary to decide whether to use a solid plate of metal or a rubber attachment. In nearly all cases if full lower, and if partials with much absorption, I use the latter, and have selected such a partial for discription.

Warm the tinned wire and press into place, and cover the scar with a fresh piece of wax, which is now ready to flask. For this I find the Watt's flask most convenient, although the Westner is good and the one used in this case. In flasking care must be used to have sufficient plaster under the ends of the wire to hold them firm and without breaking in the upper part of flask. With sharp knife make a groove around the edge of plate in upper part of flask just where edge of rubber will finish to, and

is done so as to furnish a more secure attachment for rubber and a larger surface of metal next to the mouth.

For a more secure attachment, especially in full cases, I make several pits about $\frac{1}{2}$ inch deep in upper part of flask over the ridge, these can be made with an old excavator sharpened like a screw-driver. Now cut a gate from each angle, this I make ample as it can do no harm and proves a great convenience.

The two halves of flask are now dried separately in a temperature that will not calcine the plaster; the oven of ordinary heating stove (as Stewart, Mogie, etc.) is a convenient place. When a mirror held over the warm flask will not gather the slightest moisture they will do to pour and not until then.

When dry the surface of the model should be rubbed with a piece of base plate wax to smoothen the surface and also to act as a flux for metal. The mould should be warm and the metal but very little above melting point when pouring, and should be cooled slowly to obtain a smooth casting. After separating the wire should be broken off with the finger. It will break just below the surface if the notches have been made as described. The small hole at each place where wire is broken is to be filled with some metal as that of which the plate is made, with a soldering copper (not tinned). To do this moisten the surface of plate about the hole with H Cl, or chloride of zinc, and place a piece of the metal over it and melt into place with warm copper. Now with a file smooth off plate in a rough form and fit to mouth; after fitting take the antagonism using plate just made as base plate, then proceed as usual with rubber attachment. Should you wish to make a solid plate after fitting the wire, you would proceed as usual with cheoplastic plates, excepting that after the case is on the articulator, the wire is to be put in place before the teeth are ground.

Any of the alloys of tin in use may be used for construction of this plate. While I have tried them all I like 15 parts silver to 85 of tin, although the addition of 3 per cent. of bismuth makes a good plate.

PULPLESS TEETH.*

BY DR. C. S. CAMPBELL, ST. ALBANS, VT.

IN presenting the above subject I do not expect to give as much information as I hope to gain from the discussion that I trust may follow the introduction of it.

To me it is like the temperance question which has been talked to death and yet remains an ever present fact to be met and dealt with daily.

In what I have to say I shall confine myself to practice rather than theory and simply tell you of some of my methods with accompanying successes and failures.

As my subject is Pulpless Teeth, I shall not deem it necessary to speak of pulp destroying in any way.

Let us then, take for example a tooth in which the pulp has been destroyed by the use of nerve paste.

The first thing that I attempt is to convince the patient that the pulp is actually dead, which I almost invariably find it impossible to do, if I attempt to remove the pulp immediately after removing the nerve paste, I therefore thoroughly wash out the cavity, put in a dressing of carbolic acid and seal it with cotton and sandarac varnish. This I allow to remain from three to five days, whichever will accommodate the patient best. At the end of this time I usually find very little difficulty in fishing the remains of the pulp out with little or no pain to the patient. My next step is to saturate a string of cotton with eucalyptol and dip it in iodoform powder, allowing as much as possible of the iodoform to adhere to the wet cotton. After thoroughly drying the pulp canal with dry strings of cotton, I place the piece with the eucalyptol and iodoform on it in the pulp canal and again seal with cotton and sandarac. This I leave in twenty-four or forty-eight hours, after which I remove it and dry the root with Evans' Root Dryer. To fill the root I use gutta-percha points dipped in eucalyptol and iodoform, in the same manner as the cotton put in at the previous sitting was prepared. With the anterior teeth this treatment has invariably proved successful, but I have had several exceptions when dealing with posterior teeth. I attribute

* Read before the Vermont State Dental Society, March, 1892.

whatever failures I have had in treating posterior teeth in this manner, to my inability to reach the apex of the root. I think I can safely say that in every case where I have failed and been obliged to extract the tooth, I have found a crooked root, consequently I blame my instruments rather than the method of treatment. The instruments are straight and will not turn the corner I ask them to. The treatment of pulpless teeth a fistulous opening has become comparatively an easy matter with me since I began using peroxide of hydrogen. It was at a meeting of this society that I first learned of the use of this remedy. I then had a case that I had been trying to conquer for at least two months, but it had not yielded a particle to my treatment. As soon after my return as I could conveniently I treated the tooth with peroxide of hydrogen, forcing it with a hyperdermic syringe through the root of the tooth and out through the fistula until the bubbling ceased and it came out as clear as water, then put in a dressing of eucalyptol and iodoform, sealed with gutta-percha and dismissed the patient until the next day, when I treated it again; this time there was no bubbling whatever, I then filled the root with gutta-percha, being very particular to get a good quantity of iodoform up to the apex of the root; I filled the crown cavity with gold and to all appearances the tooth has been all right since.

In every case when I have succeeded in getting the peroxide through the root and out the fistula, it has proved a perfect success so far as I know. In my experience it is the fistulas that come from the molar teeth that give most of the trouble. With these it is seldom that I can succeed in forcing the peroxide through. In the first place they are usually very difficult of access, and next the pulp canal is so much smaller than in the anterior teeth, that it makes it almost impossible to get anything through. Of course the theory is to enlarge the canal, but I am convinced that it is much easier to say "enlarge the canal" than it is to do it. The least bend in the root will let the enlarger out the side of the root instead of the apex, and when this once occurs, the best thing for the dentist to do is to extract the tooth and be sure the patient does not see it.

As a general rule, I think that most one can do for a fistula coming from a molar tooth, is to disinfect the root as thoroughly as possible and wait for nature to do the rest. If she refuses, the

tooth might as well be sacrificed first as last, for it will never be useful and it certainly will not be worth, as an ornament, the trouble it will give.

Teeth with putrescent pulps, are with me, the source of a great deal of trouble. I have before now cut into one of these that had never given any particular trouble until worked upon, when the tooth would immediately begin to ache, followed by excessive swelling. I have found by experience that the surest way for me to get along with these cases is not to stop the opening. Packing enough cotton, loosely, in the crown cavity to keep food out, but not enough to prevent the escape of the gases that are sure to form as soon as the air is let into the pulp canal, I dismiss the patient until the next day, when it will, in nearly every case be safe to put a disinfectant into the root and seal with cotton and sandarac, but I never allow this application to remain over twenty-four hours, after which, in all ordinary cases, it is safe to fill permanently. There is one condition of pulpless teeth, that of all others is a dread to me. It is where instead of going on to suppuration they seem to stop, leaving a soreness of the gum just opposite the apex of the root, usually attended by a slight swelling about the size of a large pea, which becomes hard and remains an indefinite length of time and constitutes a blind abscess. The last case of this kind that I have had was about six months ago, it was a superior central incisor which I had recently refilled with gold. The filling that had come out of the cavity was put in several years ago and the tooth had given no trouble, but in about a week after I refilled the tooth it began to get sore and cause much pain. The first time I saw it after putting in the filling, the face was quite badly swollen. I immediately drilled into the tooth and of course found a putrescent pulp which I removed and then cleaned the pulp canal as thoroughly as possible and put in a dressing of iodoform, but was very careful not to seal tightly. There was no more pain, but the swelling did not all go away, nor is it all gone now. I did not fill the root permanently, but did hermetically seal the opening, hoping to get ulceration and a fistulous opening through the gum. However, the ulceration never came and the tooth has given no trouble. Now, this last case is far from satisfactory to me, and I hope to get some information from some one in the convention that will help me out of the difficulty.

With a few words about the treatment of the crown cavities in pulpless teeth I will close. My past experience proves absolutely to me that the crowns of pulpless teeth are more susceptible to decay than that in which the pulp is alive. As a rule, too, the teeth are much more broken down and there is more cavity than the tooth substance. I have had many cases where the walls have broken away and left the filling to roll out. I think that very many of the pulpless teeth that we try to preserve by filling should be crowned. The anterior teeth with porcelain crowns, and the posterior teeth with gold crowns. If the teeth are crowned as soon as the pulp is destroyed, nearly every one would have a good foundation for a crown and the disappointment and failures of crowns would be fewer. I know of nothing more discouraging to the dentist than to try to put a crown on the root that is so badly decayed that it has no strength. If one of these fails, it is almost invariably compared by the patient with some other person's crown, and doubtless this other person's crown was put on to a good strong root.

Of course we should, and do, take into consideration our patient's ideas about it, and I often fill teeth, that I know will not last very long, where, if crowns were used, they might last for years. Perhaps the dentist who has a large city practice will say, "Why do you let your patient dictate to you? I would do the work as I thought best, or I would not do it all." I shall have to answer my city cousin, that *our* patients keep a tighter hold on their purse strings than the ones *you* do not allow to dictate to you, and will say that they cannot afford to pay for crowns, so if we put them on, we must do it at our own expense.

PRESIDENT'S ADDRESS.*

BY W. S. CURTIS, WEST RANDOLPH, VT.

FROM the first advent of man down to the present time, it seems to be well established, by tradition and history alike, that the one ideal of man, and the one around which has centered nearly every effort of the human family, has been to better his condition, in this life or the hoped-for life beyond, or both. But by far the larger part have been continually engaged in seeking

* Read before the Vermont State Dental Society, March, 1892.

to improve the present, never looking beyond the immediate future.

Every society and organization the world has ever seen, have been too well satisfied with the present and the very near future, so much so, that they lost sight in a measure, of the great principles, underlying a much better condition, but hidden to most men in the darkness of an unknown future.

Human progress has come about, largely, by one or more individuals advancing a thought more or less antagonistic to present accepted theories, which, at that time, governed that portion of the world, in which such thought had its birth.

As time progressed, the germ, which the thought carried, began to fall upon other ground and spring up here and there, until it had such a following that its existence was forced upon the mind of the most skeptical. As its followers increased, the time came when it was passed upon by the wisdom of the world, and accepted or rejected in proportion as it was supposed to improve the condition of humanity, improvement individually or collectively always being the objective point.

In nearly every instance those of whom such thoughts were born have been styled cranks, heretics, lunatics, and been called by many other pet names too numerous to mention. Still their thoughts lived on, age upon age, after the beings who gave them birth had mingled with the dust, and then it was that the world looked back and recognized in the cranks and heretics, the gigantic minds of the age in which they lived. This being the history of human progress throughout all the ages, why is it that man is so obstinate in giving due consideration to new thoughts other than his own? How apt we are to think that thoughts born of our own brains are the choicest product of the human mind, and with what tenacity we grasp them. Do we not make a mistake here, and are we not fostering an element of egotism and selfishness in so doing, over which the stride of progress must falter in its ever onward march? Should we not consider every new thought very carefully, and turn it over and over in the mind that it may be viewed from all sides, and be always ready and willing to grasp any and every new idea from whatever source we may receive it? And as we weigh it carefully try to realize that in it may be hidden a germ of truth that will live many centuries after we shall have passed away.

It is the growing tendency of this age to measure every new idea from a pecuniary standpoint, and if it does not appear to have any money in it for its promoters, it is too often discarded, not because it is of no value as an improvement, but because something less useful pays better. The true seeker for higher and better fields must lose sight of a reward in dollars, and only in proportion as he is able to do this, does he really add to the great store-house of knowledge.

Our truly great men are not our millionaires.

It is the duty of man to maintain his individuality to think, investigate and conclude for himself, and to remember that all are entitled to our opinions, which are the result of our investigation. But those giving an honest opinion must be free from fear. The merchant must not fear to lose his custom, the doctor his practice, nor the preacher his pulpit. There can be but little advance without liberty. Suppression of honest inquiry is retrogression and must end in intellectual darkness.

It is a grand thing to be the sole proprietor of your own mind and have perfect liberty to express it. It is humiliating to know that your ideas are all borrowed, that you are indebted to your memory for your principles; that your religion is simply one of your habits; that you belong to a mental mob and do things because others do them. To be always seeking an opportunity to thrive upon the efforts of the good and true, and crush under the heel of oppression all opposition to wealth and fame, while the circle of your acquaintance is forced to realize that the greatest good you would ever do this world, would be when you left it, is the history of many so-called great and successful men; but their history will mingle with their dust in many instances, while that of the crank and heretic, with a new idea, will live on through the ages. Let us, therefore, grasp the new ideas and weigh them carefully in the balance of individuality, ever remembering that they form the axis around which revolves the endless chain of eternal progress.

I desire to say for the benefit of the younger members of the dental profession, do not enter dentistry in search of a fortune. It is no field for the accumulation of riches. Men who can do the profession and their patients good will find many opportunities along the pathway of investigation for making an investment. But if they are looking for a dividend in dollars,

they may live in hope, but will feel all the while like a man who has mortgaged his home to take stock in Fort Payne.

Dentistry is of such a nature that its progress must depend largely upon men who will say, with the great Agassiz, "I have no time to make money." And the time is not far distant when men will be rated for what they are, instead of what they are worth. The man who will put forth no effort for the relief of his brother man, except in the interest of his bank account, will soon be of little use in the arena of progress. Many young men are allured to the field of dental labor under the mistaken impression that prevails in many communities, that the life of a dentist is an easy one, and highly remunerative, and they only see, in their inspection of this field of labor, a gold filling, requiring but a few moments for its insertion, with a five dollar note at the end of it. A field of labor that offered any such opportunities as that, must be a pleasant place in which to spend one's days. They seldom inquire into their fitness for the labor, it looks so easy any one must be able to do it with a little practice, and the instruments are so nice and convenient, nearly everything done by machinery, and the materials all prepared by the depots—already they see a fortune in the distance. Such is the picture that presents itself to the young man as he looks upon our field of labor. He decides to enter. But alas! what a difference between the picture and the reality. He soon has the conviction forced upon him that there is a something behind the instruments which he must possess to fill a tooth, a something behind the materials that must select a suitable material for a given case, which something he must have or the result of his efforts will take wings and fly away. Perplexities meet him upon every corner. As time goes on he finds the things that looked so easy, were the result of long years of hard and weary labor; and unable to stand the strain, after some years of wasted effort, he drops out by the way. Young men desiring to enter our profession should be thoroughly examined as to fitness, and if found wanting, should be advised to seek other fields for employment, and thereby relieve our profession of many men, the type of which stands among us to-day, a stumbling-block to the dental education of the public. One of the most remunerative and elevating fields in which the dentist of to-day can labor, will be found in giving a dental education to the general public, who, as a class, are extremely ignorant of

many facts relative to the care and preservation of the dental organs. It is no uncommon thing to find a dentist advising his patients from a pecuniary, rather than a professional standpoint, that they should do and have many things simply because, by so doing, the dentist may reap a larger reward in dollars, than by some other method.

Such advice is terribly degrading to a professional man, and in many cases an injury to the patient, who, if he or she ever gains sufficient wisdom to become aware of the fact, will generally seek some other man when in need of dental operations, and advise their friends to do the same. We should be conscientious in giving advice to our patients and seek their welfare and not our own. If we do this and are adapted to the place we are trying to fill, we shall soon be longing for a day of leisure, instead of a day of labor.

Man must soon realize that co-operation is the dominant principle underlying the peace and prosperity of a few people. To that end I would recommend that the dental profession of the United States take all proper measures as fast as practicable for the manufacture and distribution of our supplies. We should own and operate a factory under an honest, economical and scientific management, where a large part of our supplies should be manufactured with the end in view of improving our facilities for doing our patients the greatest possible good. Production for use and not for profit should be our motto.

Of course such an enterprise must necessarily be self-supporting, but that is about all we should expect of it, if we seek usefulness instead of profit. Our dental manufacturers, recognizing only the law of gain in the production of our supplies, cannot be expected to put upon the market any article of use, which does not promise a sale of sufficient magnitude to make it profitable for them. As a result of this reasoning, many useful improvements are crowded out and placed beyond our reach, which would be of great benefit to many for present use, and serve as a basis upon which to build improvements. Our own ideas, born of necessity in the past, and which have been the foundation underlying nearly everything we use to-day, are not the property of the profession, but are owned and operated by outside parties, solely for the profit they may gain. Can we not improve upon our present condition by placing our ideas of the future in the

hands of the profession under some proper system of remuneration according to value, to be manufactured, together with those of the past which are of use to us, upon which there is no legal restriction in the form of patents owned by those who would not join us. As the patents expired we could add to our list, until, in a few years, we should own and operate nearly everything needed by us in our field of labor. Would not such action place around us an environment far superior to the present?

I think the mental calibre of the dental profession fully competent to take this matter in charge, with a fair prospect of a favorable result, should they consider it wise to do so. Time forbids me to enlarge upon this subject, but I most heartily recommend it for your consideration.

We enjoy to-day, as a profession, many valuable, and to us, very necessary appliances, the existence of which our forefathers never had even a dream. Although the principles were in existence in their time, they were enveloped in a chaos of night, but as man applied the torch of investigation, by the free use of mind, time, and money, the darkness has gradually become light, until we stand to-day among the foremost if not the first of the professions of earth.

We know not what inventions may spring from the brain of the future, or what garments of glory may be worn by men of our profession, after we shall have passed from the field of action. One by one our forefathers have passed away and sleep in the stillness of earth, but the result of their labors we enjoy as a legacy upon which we may build, until we too must share their destiny. Yet a very little while and we, with them, shall sleep beneath the shadow of the clouds, oblivious alike of sunshine and storm. But while we remain, let us contribute to our legacy of knowledge, as a duty we owe to those to whom we must leave it, that their lives may be made brighter and more endurable, because of our efforts in this direction. Although we inherit many legacies, we cannot keep them no matter how fondly cherished, how precious to our hearts, how beautiful to our sight. Death will claim us, and we must pass them on. Let us then erect many monuments of love and virtue along the pathway of life, that we and others may feel, as we fold about us the sombre mantle of the grave, that this world has really been made better and happier by our having lived in it.

THE USE OF GUTTA-PERCHA AS A ROOT-CANAL FILLING.*

BY FOREST G. EDDY, D.M.D., PROVIDENCE, R. I.

I BRING before the society for discussion to-night my experience with gutta-percha as a filling for root-canals. I claim no originality, but rather present my gleanings from the operations of those in our profession who have made a success in the filling of root-canals and the saving of the natural teeth in a healthy condition. Some one has said, "Success in preserving devitalized teeth depends almost solely upon the individual skill of the operator, and possibly somewhat upon the materials used." To me the material used is a marked factor in relation to success.

We, who live in malarious districts, are beset in our practice with roots of teeth difficult to access, with their flattened and tortuous canals filled with pulps exposed, disintegrating and suppurating. To overcome these troublesome members, and bring them under subjection in as short a time as possible, is no slight strain upon the already overtaxed nerves of the busy dentist.

Here you have the most common methods: Root-canals with a drilled vent,—a discharging sewer. Root-canals with pulp removed and not filled,—a catch-basin for sewage. Again, canals filled with cotton, with iodoform, wood, lead, tin, oxychloride of zinc, gold, and gutta-percha. Skilled operators have made a success in the use of all these methods and materials in filling the canals of teeth.

The material that is simple in its manipulation, the method that may be acquired by the majority, should rank first.

Gutta-percha seems paramount in value. The nature of this substance and its properties have been well described to us by our associate, Dr. Meriam,—its non-elasticity; its wood-like hardness and toughness when cold; its being soft and easily moulded at high temperatures; its insolubility in water, alcohol, dilute acids, and alkalies; its ready solubility in bisulphide of carbon, essential oils, and chloroform. I think it advantageous to use it in both conditions, hard and in solution, in the filling and closing

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of canals: hard, in the form of small pellets and cones; soft, dissolved in chloroform, which is the method in common use. Then to this solution of gutta-percha—"chloro-percha," as we call it—I add an equal bulk of oil of eucalyptus and oil of cassia,—the essential oils holding the gutta-percha in solution after the chloroform has to some extent evaporated. You all know how difficult it is to carry chloro-percha into canals from the rapid evaporation of the chloroform, leaving the gutta-percha sticking to the instrument rather than to the walls of the cavity.

A prominent, and essential factor to success is that the root be in an aseptic condition. Operators differ in obtaining this result, as they do in the use of different materials in closing the apical foramen and filling the canals.

Dr. H. Storer How says, "All methods are defective in which the operator does not know that he has closed the apical foramen."

The antiseptics of to-day are familiar, and the list is constantly increasing. The foremost writers upon antiseptics now advocate abolishing, as far as possible, all escharotics and coagulants in the treatment of septic conditions of root-canals. No antiseptic in use by the dentist answers these questions so well as peroxide of hydrogen and the essential oils. They are non-escharotic, non-toxic,—yet antiseptic and stimulant; the manner of their use is simple and positive.

In case of immediate extirpation of the pulp by means of forcibly inserting a plug of wood,—this being preceded by an injection of cocaine, or the patient being under the influence of nitrous oxide gas,—I at once wash the cavity with hot water, to stop the hemorrhage; dry out the canal with cone of bibulous paper, in the manner described by Dr. Smith Dodge, of New York; churn out the canal with peroxide of hydrogen, instead of carbolic acid, as an antiseptic; then re-dry canal and fill with solution of gutta-percha in essential oils, which is easily worked to the apex and adheres to the walls.

Into the canal filled with the solution, carry a small piece of warm gutta-percha, gently and firmly, to the apex, following with the hard cone. The surplus solution will be forced out, and the hard cone of gutta-percha will be cemented to the walls of the canal. It will be seen that I differ here from Dr. How, if I may be permitted to again quote from his article, in which he says, "The fluid or soft plastic methods are defective, because it is only supposed, but not known, that the foramen is, in fact, tightly closed, to say nothing of the mischief likely to follow the probable forcing of the solution through the foramen."

If the pulp be in a suppurative and disintegrating condition, we remove the debris, using the peroxide of hydrogen from time to time to clean the cavity as we proceed, and dress the root with fibre of cotton or silk, saturated with oil of cassia or other essential oils.

When the root is in a healthy condition, fill with gutta-percha in the manner before described.

The root having a fistulous opening, the canal is cleared of debris, and filled with peroxide of hydrogen. By a piece of soft unvulcanized rubber and a blunt instrument used as a piston, the peroxide is forced through the canal and out of the fistulous opening, the whole tract being left in an aseptic condition. After again drying the canal, the solution of gutta-percha is forced in similar manner through the fistulous opening, closing the canal, as before, with gutta-percha.

Frequently, after filling the canal by some of the old methods, a slight discharge would continue from the fistulous tract; but never have I had a case that would not yield to the above treatment. My theory is that the old sac at the apex of the root is distended and filled with the solution of gutta-percha, and this remains encysted. Some inflammation often results from forcing the the solution of gutta-percha through the fistulous tract, but in a day or two at most it usually subsides.

In the treatment of root canals I have used the peroxide of hydrogen for eight years faithfully, it being first brought to my attention by Dr. Crittenden, of Madison, Wisconsin. I have used gutta-percha in different and various forms for about the same length of time.

From working upon and refilling canals that have had cotton, oxychloride of zinc, wood, and metallic stoppings, I am led to think of gutta-percha as occupying the foremost position in the closing of roots of teeth that are devitalized.

I have taken the liberty, and I know you will allow it to me, to bring a few extracts from the records of work done in my office upon devitalized teeth.

From November 1, 1890, to November 1, 1891, a period of twelve months, I find the canals of one hundred and fifty-two teeth successfully filled after the manner described. To classify them a little more thoroughly, there were fifty-seven molars, fifty-seven bicuspid, eight cuspid, seventeen lateral, and thirteen central incisors. During the same length of time but two were removed as complete failures. Both of these were most faithfully operated upon, and I consider their loss and the failure due to the low vitality of the patients.

I am led to advocate this method because the antiseptics as used are not coagulants, and are not escharotic; because of their non-irritating character in relation to the soft tissues; and because of their pleasant

odor in the office. No creolin, creosote, or iodoform is used in my office.

[Dr. D. R. Jennings, Cleveland, O., was the first, we believe, to advocate, a number of years ago, forcing gutta-percha solution through the root for the cure of abscess.—ED.]

DENTISTS AND DENTISTRY AS SEEN BY OUR PATIENTS.*

READ BY DR. W. H. WRIGHT, BRANDON, VT.

THIS world contains a great deal of trouble; but a convention of dentists represents more misery to the square inch than any other assemblage of a like number of men, and the memory of past experiences with them brings back recollections of days that lasted only too long.

Of all pain that flesh is heir to, what can equal the toothache? From infancy to old age it is one constant struggle with teeth, first to grow them, then to keep them, and lastly to be rid of them altogether, then to invest in false ones.

Just why the First Great Cause did not make the jawbone and teeth all one—permanent—and without nerves, has always been a mystery; but after the mistake had been made, dentists had to be evolved, and it appears they have come to stay.

It is astonishing what an amount of ignorance an educated man may possess; good common sense is not found alone in books, it is a simple homely quality, which is not always inherited, and the bluest blood may lack its vigorous strength.

No profession needs *more* good sense than a dentist's. The recipient of the miserable experiences of people needs discernment and a silent tongue. No doubt there are many cranks among patients, but what will reduce a strong, healthy person to idiocy sooner than a jumping toothache?

It would be well, if when the dental student had received his diploma, he should be required to undergo, at least, one trial of inhaling ether, the attendant pleasure of having teeth extracted, with a piece of jawbone attached, his most sensitive tooth bored out and filled, with all the minor punches and scrapes which are thrown in, how many dentists would there be in the country? not enough for a corporal's guard.

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Did anybody ever hear of a dentist having a tooth pulled? *Never*. Did anybody ever know of a dentist wearing false teeth? The *oldest inhabitant* never heard of a case. Did any dentist ever have the nerve to a tooth killed? *No*, with a big *N*. Dental students talk glibly of nerves, a most delicate and sensitive thing, to be tenderly cared for and approached with fear and trembling, that a tooth pressing on a nerve will cause all the "ills flesh is heir to," but as soon as their diploma is framed, they proceed to eradicate every vestige of pity from their system, invest in a dental chair manufactured of iron, made strong, on purpose to hold aches (which they encourage for business purposes), then they solicit victims; and they scrape, and file, and drill, never losing an opportunity to touch the sorest spot, they will beguile you with their silvery tongue, but the first good chance, *ough*, and you had died in infancy, and you *know* the top of your head has lifted a foot, at least. After your very best feelings have been *harrowed* and *dragged*, they will chuck in the filling, take your money, smile blandly upon you, and invite you to call again. If there were more good mechanics among dentists, there would be more well fitting false teeth, it makes one feel pleasant to have them tilt from one side to the other while trying to eat, and very likely to leave a corn. Dentists talk fluently about molars and grinders, incisors and eye teeth, that every tooth has its own motion, spring and nerve, and those nerves all lead somewhere (nerves usually let folks know where they are), but many a man who could build a rail fence scientifically has been swallowed up in the dental profession, who ought not to have anything more *nervy* than a rail to operate on.

It is not expected that a dentist will be all saint-like, as it is seldom he has saints to deal with, neither does he cut his wisdom teeth earlier than his patients, but he should aspire to be *the best* in the profession, take pride in doing his *work well* and not trust to his professional dignity, or the apprentice in the back-room to do a *good job*.

In these days of microbes, bacteria, germs, etc., is it a wonder that any one is left *alive*, and dentists are to be held responsible for the health of future generations. Who can tell just what spasms the digestive organs undergo, when the teeth do not act with equal pressure while chewing a tough steak?

The medical fraternity have always occupied the "high

seats," but a thorough mastication of food is the best doctor, and we look to the dentist for a preventative from the all-destroying germs of disease. *The surest sign of health is a clean mouth*, and with all the facilities for a scientific education, laboratories, lecture-rooms, and improved mechanical appliances, it would seem as if our troubles were nearly over.

But we ought not to fail in noticing the other side of our subject. Every cloud has a silver lining, and the dental operator is no exception. As we approach his realm it looks like a cloudy darkness, and everything in it wears the forbidding aspect of a chamber of horrors; but when all is over, the pain gone, and our teeth made as good as new, we leave with light and not ungrateful hearts. It is then that we recognize the substantial benefits bestowed by the dental professors upon our generation in relieving an evil which they did not cause, and in saving us from the fate of being a toothless race, to be fed on pap the rest of our days. Thousands of happy patients can testify to the relief which they have found through the skill acquired by much labor and study, and are ever ready to honor those who have conferred upon them exemption from suffering, and so added both to the power and the enjoyment of their lives. It was well we did not need such services, but needing we should be poor without them. It is one of the many benefits conferred by science upon us that those who are acquainted with its lore find there a practical power to bless the world.

Let us have good men in the profession, *with all* the words imply, men who make a *thorough study* of their *business* and are *never too old to learn* newer methods. Men of solid worth, GENTLEMEN, the community look up to professional men for an example. They are expected to have, added to their natural talents, the refining influences of our institutions of learning, and are expected to do their *level best*, and above all should *learn to know when they don't know*.—P. LOUISA HALL.

IMMEDIATE ROOT FILLING.*

BY DR. S. HUBBELL, BURLINGTON, VT.

IN preparing a paper on the subject of immediate root filling, it is not my desire to present any new methods of root filling, or in fact to discuss any of the methods now in use. I wish merely to present my reasons for believing that under certain conditions the practice of immediate root filling cannot be successful.

There are many conditions of the roots of teeth presenting themselves for filling, from the healthy root canals through all stages of inflammation, decomposing and dead pulps, complicated with disease of the peridental membrane, and alveolar abscess.

It is due to these conditions that so many men differ in their methods of treatment, in regard to the very important point as to the proper time for permanent filling.

I believe the method of immediate root filling would be universally adopted, if we were only required to fill healthy roots; that is, canals from which healthy or living pulps had been extracted. These are the most favorable cases as an incised wound is left at the apex of the root which will heal by first intention. The canal may be permanently filled at once with slight danger of irritation following, provided all proper aseptic precautions have been observed.

If the pulp has been destroyed by the use of arsenious acid, and the acid has been confined wholly to the pulp, and its removal is experienced with some pain, we may feel comparatively safe in filling it at once.

We have undoubtedly noticed the dentine and enamel of teeth become partially and sometimes thoroughly discolored from the use of copper amalgam with which they have been filled.

If these dense tissues will allow this coloring matter to penetrate them, may we not well believe that septic matter from a pulp having been a source of infection for a long period, and having caused alveolar abscess, will thoroughly infiltrate the dentine and at times reach the peridental membrane. For the tubes which penetrate the dentine opening with their largest diameters into the pulp chamber, are, when a tooth is in a normal condi-

* Read before the Vermont State Dental Society, March, 1892.

tion a source of strength and nutrition, but when the tooth is attacked with caries they facilitate its decalcification and finally decomposition of the organic which has served for a matrix for the inorganic. The tubes in this condition, and the imperfections which are liable to be present in the dentine, invite the free ingress of fluids which consume and disintegrate the organic material of the tooth and supply as their product a mass of septic and decomposing tooth structure. Under these conditions how can we accept the statement that all roots can be made aseptic by one treatment, the root permanently filled, and without any future trouble (as it would necessarily be by the immediate root filling method. The decomposition which renders the most uncertain and troublesome treatment of any of the pathological conditions of the pulp, requires the ingress of atmospheric germs.

This septic poison aided by this prime factor, atmospheric air, so inflates the surrounding tissue, that by long standing the most thorough treatment will in some cases prove ineffectual. It is with this class of diseased roots that we find so wide a difference exists between the immediate root filler and the practitioner with more conservative ideas. Great confidence is placed on nature's curative power by the typical immediate root filler. This power is everywhere present in all parts of the body, yet its power to heal cannot be definitely known.

It is without doubt a safe practice to keep the root canal open until we have more conclusive evidence that a cure has been effected than that of the termination of the discharge. We should look for further results, the evidence of new tissue being formed by granulation at the apex and the fistula healed. Even at this stage of treatment a positive cure may not be effected. Should any amount of inflammation appear, especially if the patient is in a depleted condition caused by constitutional disturbances, the new tissue formation is liable to break down and we still have a chronic case of abscess. In blind abscess and all other complications which are apt to follow this precipitate method, immediate root filling, the surgical process of opening up the gums and drilling down through the alveolus to the abscess is frequently mentioned as an effective and painless operation. We may treat the abscess through this opening, but not nearly so effectually as through the nerve canal. Besides the

uncertainty of affording relief it must be performed at the most painful stage just before the formation of pus.

The papers and discussions which have been presented on this subject in the past, have had I think a good effect on our private practice. It has resulted in the adoption of better methods of antisepsis, and we who have failed in the two extremes of over treatment and immediate filling, will be competent to practice more exact methods and no doubt in the future have more uniformly good results in our efforts to save pulpless teeth.

FIRST DENTITION.*

BY A. J. PARKER, BELLOWS FALLS, VT.

IF, by the effort to prepare and read an essay before the Vt. Dental Society, I may cause to be extracted from its subject that which may not only edify the society but prove beneficial to us as dentists in a practical sense, I shall thereby only attain the object of my labor. To gain knowledge in the dental art, reciprocity of the methods and ideas must exist among the members of the dental profession otherwise there would be no progression.

The only way to determine the relative value of methods and ideas is through that medium known as comparison. Through this medium we are led to make choice, and duly see and appreciate the beauty and merits of that which may excel. It is exceedingly gratifying to be counted worthy the fraternal bonds that I believe to exist among the members of the Vt. Dental Society, whose greatest aim is to grant that free exchange of its choicest and most valued jewels, its methods and ideas. If any portion of the dental physiology has a greater claim over another it must be that of First Dentition. For at this period of human existence it takes but a trifling breeze or adverse circumstance to completely extinguish the candle of human life. Influences brought to bear by any morbid or unhealthy action, are more difficult to overcome at this critical time of life. It is astonishing what a rate of mortality exists among teething children. It is recorded that in London there occurred no less than 7261 infant deaths during one year from teething. The lives of human beings are marked by certain periods and during these the physical

* Read before the Vermont State Dental Society, March, 1892.

nature undergoes important changes. These periods are characterized by certain phenomena which are dependent upon the nature of the developing organs, and the health of the functions that pertain to it. When nature pursues her free and interrupted course the result will be gain, but if nature is perverted the result will be great suffering and perhaps death.

Nature exercises free command over the body she has formed when no obstacle is placed in her way to prevent her natural workings. The first of these developments is First Dentition. This physiological process is performed at a time when the body is exceedingly excitable, and when physical suffering will produce severe results, and when irritation caused by local developments will affect the system at large.

Thus do we learn that First Dentition is a very important period in the existence of human beings. It behooves us to examine very minutely all of its workings with regard to man. Here we may not only trace the cause of many deaths in infancy but prove that here were procured and sown seeds of many a future life of disease and misery.

The sufferings of infantile life are influenced in a great measure by the natural make up or constitution of the infant, hereditary taint, etc. Again by mismanagement. The latter bears more than the ordinary share of responsibility. The treatment of the infant should be in exact accord with the temperament thereof. The same rational law that governs in adult life should be practiced with regard to the infant, *i. e.*, so far as temperament and constitution are concerned, in that what one can bear another cannot. Therefore, health is based upon these two points, *viz*: the natural constitution and management

If a child is born of healthy parents and has plenty of the proper and nourishing food then are the obstacles that impede the organization and eruption of the teeth nearly all foreign to the infant.

The teeth and gums are so nervously connected with other important organs of the great human mechanism, that there seems to be a decided sympathy existing between them. Therefore if the gums and peridontium are irritated, an inflammation will of necessity follow, which may very readily be propagated to the parts of the body which are in direct relation with them and thereby bring about serious complications, and this the more

easily in proportion as the parts are predisposed to disease. Although dentition is considered with reason to be dangerous, yet it is not so in the order of nature. Although fever, pain and convulsions accompany the eruption of deciduous teeth, yet we can hardly consider them the outcome of the above mentioned process, but rather from the corruption of humors put in motion by the pain of dentition. It has been carefully observed "Children nourished with bad food and without proper regulations as to quantity nearly all die before they are nine months old." In this and many other accounts do we see the shocking effect of the pernicious influence of bad food on the period of dentition. And the tables of mortality have been greatly enlarged by the deaths of infants who have been badly nourished during this period. If the food or life giving substance be bad, then the infant receives in the very agents of nutrition the elements of destruction, and if the infant be fed more than the stomach can hold it will be thrown off. Nature has, and is doing all it can to help to sustain life in man, but when man deliberately violates her laws and persists in doing so she is forced to succumb.

So if the stomach of the child continue to be overloaded, it will of necessity become weakened and thus rendered so that nature can do not else but yield to disease and perhaps death. Children of healthy parents usually pass through the period of dentition with but little if any trouble. While on the contrary, those born of a weak and nervous constitution may suffer much. The aim then should be to strengthen the physical organism of the child by fresh air, good food of the proper kind and quantity. The diet must be free from stimulant. Care must be taken not to impose upon the delicate child stomach every conceivable article of food that would be considered fit to grace or otherwise the digestive organs of an adult. If the child is deprived that greatest blessing, mother's milk, then should be sought that which most resembles it. The habit of feeding sips of tea or coffee, and other articles of food which necessitates mastication and insalivation must be strictly avoided. The very fact that the infant is without a full set of teeth until two years old ought to be sufficient reason to a person of average intelligence, why the infant should live chiefly on food that needs no mastication. The active stage of dentition begins about the third or fourth month of infancy and consists in the conversion of the pulp formations

beneath the gums, and formed during foetal life, into a hard substance. During the process of dentition the child not only suffers much pain but conveys that positivity by restlessness and irritability. Notwithstanding the fact that the trouble may be in a great measure constitutional, yet I believe we can by local treatment greatly relieve the sufferings attendant upon first dentition, and this can be done by the simple process of lancing the gum over the forthcoming tooth or teeth. I have witnessed many a case where the infant betrayed very positive evidence of much suffering, at times during dentition, and in the following way, by the rubbing of the nose, drooling, tossing the head from side to side when sleeping, also occasional crying out when sleeping, and exceeding fretfulness when awake. These observations have for the greater part been based upon my experience in my own family. And I have been exceedingly happy, when by the application of the lance to the gum over the pressing teeth the little one would drop off into such a restful sleep. I have also known mothers to take a thimble or an old blunt nail and rub the already exceeding tender gum to give the little sufferer relief, rather than submit to the brutal treatment of cutting their little darlings gums with a keen lance by the cruel dentist. There is but little hurt to cut quickly with a sharp lance the pressed gum over the erupting tooth, but this seems an awful cruel way to those who do not stop to reason about things.

Dentition, as I have stated is not in the order of nature mortal, when taken by itself. It only becomes a cause of disease by its reflected influence on the delicate nervous system of the child. The period of dentition is one in fact in which the whole organization is undergoing a revolution, in passing from an exclusive milk diet to that of a more complex character. The whole digestive system undergoes a similar development. This is what makes the period of dentition one of special interest, and the more consideration we give it, the greater good may we hope to accomplish thereby. And good may we be able to accomplish first by acting the part of a savior of human life, again, by being able to impart to those who place themselves under our care for treatment, the knowledge that shall enable them to save life.

FORMATION AND CARE OF THE TEETH.*

BY DR. K. L. CLEAVES, MONTPELIER, VT.

I PRESUME all of you are more or less familiar with the subject upon which my paper is written and perhaps I may not be able to present anything new to you, but possibly it may serve to freshen your memories somewhat on the subject.

It might well be said of this as of the "fifth pair of nerves" that one has to learn and forget it seven times, before being able to remember it.

When I first commenced the study of the formation of the teeth, I thought it to be an extremely dry subject, but gradually I became more and more interested in it until now there is no one operation of the whole animal economy in which I am more interested.

Many times a dentist is questioned by the better class of his patients, regarding the formation of the teeth, in such a case it is well for him to have at command a general idea of how and when they are formed, that he may be able to explain to them satisfactorily something about it.

But to go on with the subject, will say that I have abbreviated all that the subject will allow and yet touch on the most important points.

Let us first take into consideration the mucous membrane of the mouth. The epithelial layer of the mucous membrane is one and the same thing as that of the skin covering the body. The only point of difference is, the external covering of the body is kept in a dessicated condition by the atmosphere, while the oral mucous membrane is constantly bathed in saliva. Therefore the mucous membrane (of the mouth) and the skin are analogous and continuous structures. In a general way they are composed of two layers—the dermis and the epidermis—yet they have been further sub-divided. At a very early period of foetal life can be seen the first sign of cellular activity, in the epiblastic layer which covers the gums. By comparing the epithelial covering of the gums, we observe that it has two or more layers of oral cells while the same membrane on the outer portion of the body

*Read before the Vermont State Dental Society, March, 1892.

has but one. This epithelial covering gradually thickens by the rapid cell-multiplication, until it gives rise to a slight ridge which locates the line to be occupied by the future arch of teeth. Beneath this thickened epithelial layer is a groove, or depression, in the underlying tissue which gradually deepens, and takes a direction towards the centre of the arch, as cell-multiplication advances. This epithelial band (as we will now call it) is simply a dipping down of the natural covering of the mouth and is composed of the same elements as the epithelium of the mucous membrane of the mouth. The convex surface of the band is toward the outer side of the jaw. This peculiar curve is almost always seen and is one of the most characteristic features of the band. The walls of the band are composed of the infant layer of cells, while its center is filled with the older cells. The band as seen at first is broad, but as it develops and sinks deeper into the jaw it becomes narrower.

The band is deepest at the anterior portion of the mouth and gradually becomes shallower until it finally disappears in the epithelial covering of the gums at the posterior portion. When this epithelial band is fully formed a lamina is given off from the inner side of the band. The formation of this lamina may be explained as a W-shaped infolding of the infant layer.

These two processes are termed the band and lamina. This lamina is only a continuous process of the epithelial band. Cell multiplication seems to come to a stand, in the band, while it still proceeds in the lamina, dipping deeper into the substance of jaw. At this period the band becomes shallower and sometimes disappears, while the process of development is transferred to the lamina. Small buds make their appearance on the free margin of the lamina, and soon extend into slender cords, each cord forming in time the enamel organ of the temporary tooth. These buds correspond in number and position to the future deciduous teeth. The length of the cord varies, being shorter in the human than in some of the other mammals, and is also shorter in the temporary set, as those of the permanent have to descend beyond and beneath them.

The cord is composed of a solid ingrowth of cells which constitute the lamina from which it arises. These cells are oval or spherical in shape. They are sometimes spoken of as cylindrical in shape, when the layer is only one cell deep, but if more

than one layer exists I believe they are usually spoken of as being oval or spherical. The cord at first pursues a horizontal course, until it attains considerable increase in length, when it turns sharply upon itself and takes a vertical direction more or less deeply into the substance of the jaw. After the cord has changed its direction, its extremity assumes a bulb-shaped mass. The part of the cord which forms the connecting link between the bulbous portion and the band, does not keep up with the extremity in growth, therefore it is rightly named the neck of the enamel organ.

At this stage of the developement of the enamel organ, the dentinal germ or papilla makes its appearance, which causes the enamel organ to become concave, although it does not become separated from the sub-epithelial connecting tissue of the jaw and its growth is upward, while the growth of the cord has constantly been dipping downward.

Should we examine the enamel organ at about the fifteenth week of the development of the embryo, we would find that a considerable change had taken place.

The primitive elements [composed of polygonal cells in the centre with an external layer of prismatic cells] have been notably modified. The cells of the central mass have been changed into stellate cells. These stellate cells are composed of a central nucleus, surrounded by a finely granular mass, which inosculates with the adjoining elements. The cells near the periphery maintain their primitive polygonal form for a time, but as the enamel organ increases in size they become stellate. After a time the base of these stellate cells presents the regular prismatic form of a hexagon. During the early stage of evolution the prismatic cells have the same characteristics on all parts of the periphery, but as soon as the papilla make their appearance those of the external or convex surface diminish in size until they finally disappear, while those of the internal or concave surface remain for the formation of the enamel organ. The cells on the concave surface of the enamel organ increase in length and their extremities form slender processes which are continuous with the filaments of the surrounding cells and constitute what is known as the stratum intermedium. This stratum intermedium consists of cells which have not become stellate, or we might call them young stellate cells. The enamel forming cells are developed

from embryonal corpuscles, and these corpuscles are formed by the breaking or dividing of the prismatic cells. The cuticula dentis or "Nasmyth's membrane" is formed from the enamel cells and may begin to form before any calcification of the dental tissue beneath. It may be seen on the surface of the enamel, after the eruption of the crown of the tooth and may be separated from the surface of the enamel by the use of strong acids.

As the epithelium is undergoing this peculiar and interesting process of development into the enamel organ, we find a projection of the corium of the mucous membrane rising up from the dental groove to meet it. This is called the dental papillæ, which papillæ are to form the bulk of the teeth. The first germ of the dentine appears as a dark semi-lunar mass at the bottom of the dental groove. At certain points where the subsequent teeth are to be this young structure develops and pushes up against the enamel germs.

The papillæ is made of connecting tissue cells, similar to those found in other parts of the body. As the dentinal papillæ increases in size and pushes up against the enamel organ, it becomes constricted at its base, about where the enamel organ is reflected back upon itself.

The follicular wall [which begins to develop soon after the dentinal germ] gradually grows upward and embraces the enamel organ and papillæ, soon assuming the appearance of a distinct laminated membrane, which may be separated from the adjacent tissue except at the base of the papillæ. The dental follicle gradually grows upward until it gradually closes over the top of the enamel organ, beneath which is the papillæ, and the coming together of its edges produces strangulation of the epithelial cord, therefore the cord becomes ruptured at this point. The dental follicle also becomes separated from the mucous membrane.

At this stage the cells from the dentinal papillæ form a soft mass of animal material, which afterwards become filled in with lime salts to complete the dentinal tissue. After the dentinal papillæ has become covered over by the enamel organ, odontoblasts [dentine cells] begin to form.

The odontoblasts belong to the connective-tissue group and are formed from the dentinal papillæ. The odontoblasts are seen as elongated cells, with numerous fine processes extending into

the calcareous mass. As the processes, which the odontoblasts send out develop, they calcify on the outside forming the dentine, while the uncalcified portion forms the dentinal fibrillæ. We might say that the odontoblasts superintend the depositing of the lime salts around the rod-like fibrils, and thus tubular dentine is formed. The deposits of dentine is the work of the older cells on the surface of the dentinal pulp. Dentine is formed by the secretion of the lime salts around the fibrils of the odontoblasts, and these being rod-like, it is very plainly seen how the deposition takes a tubular form. The thickening of the dentine is by accretion of lime salts in such a way as to lengthen the tubuli. These cells persist throughout the life of the pulp, and have the power to form secondary dentine, when they are stimulated by the irritation of decay. This thickening is at the expense of the pulp cavity and of that of the size of the organ itself.

The remains of the odontoblasts is that layer which constitutes the investment of the pulp, lying between the nerves and vessels and the dentine.

Let us say a few words in regard to the development of the cementum. This process is only slightly modified from that of the development of bone. The circumference of the root before the deposition of cement is as large as it ever gets, as the increase in thickness of the dentine is from the periphery toward the center at the expense of the size of the pulp. The thickening of the cement is from the first layer deposited upon the dentine externally, thus enlarging the circumference of the root. When this process extends beyond a certain limit, we have what is called exostosis, generally occurring later in years, from the result of constant irritation. The pericementum is very much like the periosteum and superintends the deposition of the cementum. A single layer of osteoblasts or cementoblasts is first formed around the outside of the dentine. Other layers follow, each assuming the characteristics of the first formed layer, until finally the desired thickness is reached.

We have seen how beautifully the process of development of three of the physiological divisions of the teeth is performed by the economy. Now let us direct our attention to the fourth, which is the dental pulp. The pulp occupies the pulp cavity in the center of the tooth.

We find the pulp to be the remains of the dentinal papillæ, after it has performed its work of dentinification. We also find that the dentine gets its nerve and blood supply through the pulp. The nerves of the pulp are many and consist of medulated and non-medulated fibers, which enter the pulp through the apical foramen. The pulp is an extremely sensitive organ, and is enclosed in a very delicate, almost structureless membrane, which is attached to the walls of the pulp cavity. A great many theories have been advanced in regard to the termination of the nerves, and I believe no definite knowledge has yet been presented. It is claimed by some that the fibers pass between the odontoblasts and either unite with the dentinal fibrils or pass between them into the dentinal tubuli. Others assert that the nerves become united with the stellate cells, which form a layer beneath the odontoblasts. The dental pulp as age advances, diminishes considerably in size. Sometimes the degeneration is carried on to such an extent that the pulp becomes a shriveled insensitive mass.

What has been said so far has reference to the deciduous teeth. The permanent teeth which later on, are to take the place of these, arise from an epithelial cord, which originates from the cord of the corresponding deciduous tooth. This, however, does not hold good for all of the teeth, only, for instance, the incisors, cuspids and bicuspid. The permanent cord takes a vertical direction when sinking into the substance of the jaw and at the same time assumes a spiral form. It can always be distinguished from the primitive cord by this peculiar spirality. This spirality of the permanent cord is necessary, as it permits the follicle to reach a point below a temporary tooth, without stretching the cord. The origin of the cord for the permanent teeth is not always at the same time but varies considerably.

In the human embryo the cord for the permanent incisors may be first seen about the fifth month, while we find that their eruption does not take place until between the years of six and eight. We find that the permanent molars, which have no deciduous predecessors, originate in a different manner from those which have deciduous predecessors.

The follicle of the first permanent molar appears only a short time after the appearance of those of the deciduous teeth, which is about the fifteenth week of embryonal life, and does

not erupt until about the sixth year, therefore it is called the sixth year molar. It originates directly from the epithelium of the mucous membrane, back of the temporary teeth, where no follicle has preceded it.

The second permanent molar originates from the epithelial cord of the follicle of the first permanent molar, in the same manner as do the twenty anterior teeth. It takes a position back of the first permanent molar and is developed in line with those anterior to it. The origin of the third permanent molar or wisdom tooth, takes place in the same manner as that of the second permanent molar. Although we have said that the cords of the twenty anterior permanent teeth arise from the follicles of the temporary, yet sometimes they emanate directly from the epithelium of the mucous membrane. After the epithelial cord becomes detached from the enamel organ, it generally disappears by absorption, yet it is possible for some such masses to be left and become the enamel organs of supernumerary teeth.

Now, in conclusion, will say something in regard to the care of the teeth, as a suggestion in regard to what we dentists as a rule fail to do, and that is to impress upon parents the importance of proper food materials while the teeth are forming.

It is too often the case that the first visit of a child to a dentist is after the first teeth have come and gone, many of them, and the permanent teeth begin to give them trouble. Their deciduous teeth being extracted by their parents with a string, or they work at them themselves, until they can pick them out with their fingers.

About the time the six year molar is too badly decayed to save, without destroying its nerve, and after being made to believe from infancy that the dentist is the most horrible of horrible creatures, the child is presented with this question: "Doctor, why is it that children's teeth don't last as they used to?" Now this is exaggerated in many cases, but none of you can deny that it's truth has been too often verified in your own experience.

Now for seven months before until seven months after birth the first deciduous tooth is growing atom by atom as the necessary elements of tooth substance are furnished by the mother's blood. And at the time of birth the germs of the permanent teeth lie hidden in the gums, gradually forming, not to be called into active service until many years later.

Now, if the deciduous teeth are of so much importance as to require fourteen months for growth and development, while nine is sufficient for the eye and ear, I think they are of too much importance to suffer through neglect and carelessness. Commencing as far back as foetal life, when the child receives its nourishment from the mother's blood, can you introduce the proper food elements which will lead to a more perfect set of teeth?

The child while dependent upon its mother gets lime, phosphorous, potash and all the other elements of which the teeth is composed, just in proportion as the mother gets them. If the mother lives principally on starch, butter and sugar, neither of which contains a particle of tooth-forming material; would it be strange if the child had poor teeth, especially teeth poorly enameled. Now I think there are well defined principles, which, if closely carried out during the formation and growth of the teeth, would partially if not wholly overcome this difficulty. In talking with one man quite recently on this subject, he says: "Why, if teeth should be brought up to that standard, where they needed no filling at all, what would you dentists do for a living?" I hardly anticipate such a time when there will not be plenty of teeth to fill. But I believe there is a method (even in our generation) by which teeth can be improved to such an extent, that when a dentist exercises his utmost skill and care in filling a cavity, he will not do so with the feeling that, perhaps, in a year or two it will come back to him decayed around the filling.

Dentistry at the present time has reached that standard, where it stands shoulder to shoulder with the medical profession. In the colleges anatomy and physiology, and many other branches are taught as thoroughly as at the medical schools. Not enough attention is paid to those branches in dentistry. The manipulative part of dentistry has already reached a high degree of excellency. When a conscientious dentist, who thoroughly understands his business, fills every tooth the best he knows how, with the material he thinks is best adapted for that tooth, he is doing all that can be done in that direction. Then, when teeth fail under such proficiency, as they sometimes do, what is to be done?

Patients should comprehend that the finest and best work will not preserve teeth in defiance of their abuse and carelessness. My opinion is that every dentist should impress upon his patients these facts:

Instruct mothers in regard to the best articles of food for their growing children.

Instruct parents as to the means of preventing the premature loss of the deciduous teeth and preservation of the permanent ones. And too, the importance of thorough cleanliness at all times. In regard to articles of diet, it would be well for us to familiarize ourselves with the constituents of tooth substance and where they may be found.

We would be safe in telling our patients that everything that grows will make good teeth, if eaten in its natural state, no elements being taken out. Horses, cows, sheep and other animals that live on nature's own production have good teeth. For children to be strong and healthy and have sound teeth, it would hardly be necessary for them to eat grass or to go back to a state of savagery, but take food in the proper proportion as nature provides it. For instance, phosphate of calcium is the principal element in tooth substance. That is found in milk, eggs, potatoes and many other vegetables and fruits, but especially in the grains or cereals. It is most abundantly found in wheat "the staff of life," but not in the fine white flour, that the good housewife is so fond of making into snowy loaves of bread. I would advise the free use of lime water with the milk, as much as would be assimilated and not be distasteful. Would also advise it as a mouth wash after the use of acid fruits, lemonade, etc. It is very easily prepared and inexpensive. A teaspoonful in a glass of water or milk would not be noticed and would have a wonderful tendency towards hardening the teeth. Even as a mouth wash a portion of it would be taken up by the absorbents and eventually reach the teeth through the general circulation. I will not further discuss the articles of food, but will leave it to your better minds to consider.

I hope the time will come when people will pay more attention to diets containing tooth forming material and arrive at results that many already have attained.

VERMONT STATE DENTAL SOCIETY.

THE sixteenth annual meeting of the Vermont State Dental Society held at the Van Ness House, Burlington, on the sixteenth, seventeenth and eighteenth of March, was one of the best

attended and most interesting of any held thus far, fifty-five being present at the first session, the number being increased to eighty-five the next morning. Among them were several prominent dentists from the States and Canada.

The meeting was called to order at 7:30 o'clock Wednesday evening, and after the preliminary business had been disposed of, Dr. James Lewis gave an address of welcome which was followed by papers from Dr. S. Hubbell, of Burlington, on "Immediate Root Filling"; Dr. G. W. Hoffman, of White River Junction, on "Dental Legislation"*; and Dr. C. W. Staples, Lyndonville, "A Practical Cheoplastic Plate," with models.

At the Thursday morning session papers were read by the president Dr. W. S. Curtis, Prof. J. H. Linsley, of New York, "Micro-organisms of the Mouth," demonstrating the action of these microbes upon different substances. All pronounced this paper one of the best ever read before the society. Dr. K. L. Cleaves, of Montpelier, wrote of "The Formation and Care of the Teeth," and Dr. Forest G. Eddy, of Providence, R. I., "Use of Gutta-Percha as a Root-Canal Filling." This paper showed large experience with this class of fillings. Dr. Eddy uses the crude gutta-percha dissolved in chloroform.

Thursday afternoon until four o'clock was devoted to clinics by the following gentlemen: Dr. C. A. Timme, of New York, demonstrated the making and setting of Enamel Inlays. The inlays being fused over the flame of an alcohol lamp.

Dr. F. S. Belyea, of Boston, Crown- and Bridge-Work, making and setting three different bridges during the three days' meeting which were very beautiful pieces of work and proved Dr. Belyea a master of this class of dentistry.

Dr. G. O. Webster, of St. Albans, Staining Artificial Teeth by painting them with paints sold by Ash & Co., then burning them in a furnace. This work seems very nice when one wishes gold on artificial teeth or when representing a tobacco-chewer's teeth.

Dr. J. E. Waite, Boston, exhibited the Packard Ether Inhaler with improvements by himself; a very ingenious apparatus for rapid anæsthesia with either ether or chloroform.

At 4:30 o'clock the meeting was again called to order and a

* NOTE—Up to the time of going to press this paper has not been received, hence its omission in this number of the JOURNAL.—ED.

paper read by Dr. G. F. Cheney, "Pulp Protection by Cavity Lining," followed by an interesting paper by Dr. W. G. Beers, of Montreal, "Some Observations During Pregnancy."* Dr. H. C. Merriam, Salem, Mass., followed on "Professional Journalism,"* and Dr. A. J. Parker, of Bellows Falls, on "First Dentition."

The entire evening was devoted to a banquet and social enjoyment.

A 9 o'clock Friday morning the meeting was called to order and officers for the ensuing year were chosen, as follows: Dr. Geo. F. Cheney, President; Dr. A. J. Parker, 1st Vice-President; Dr. W. H. Wright, 2nd Vice-President; Dr. Thos. Mound, Secretary; Dr. W. H. Munnsell, Treasurer. Executive Committee, Drs. E. O. Blanchard, Geo. O. Webster, and C. W. Staples. Dr. G. W. Hoffman, State Prosecutor.

After the newly elected president had taken the chair papers were read by Dr. C. G. Campbell, St. Albans, "Pulpless Teeth," and Dr. W. H. Wright, "Dentists and Dentistry as seen by our Patients."

The meeting was adjourned to meet the third Wednesday in March, 1893, at St. Albans.

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RESOLUTIONS ON THE DEATH OF DR. W. H. ATKINSON.

To the Vermont State Dental Society now in session, Gentlemen:

It is recorded that Dr. William H. Atkinson, an honorary member of this society is dead. But *such men* never die. Their thoughts and deeds are immortal—they live forever.

His was a master mind, richly endowed with rare gifts. An original thinker, with a keen and swift insight into the heart of things.

He persistently opened his mind to nature and science and they rewarded him in a wonderful revelation of their secrets.

While he hated shams and a smattering of truth, he was generous towards all mankind. He had a heart that was as large as a mountain, and a love that was world wide. He gave all his powers of body, soul, and spirit, to the profession he loved so well, and to the friends which he loved so much.

He was a grand man, a sincere man, a man of integrity, an honor to the dental profession.

He said many times before going hence: "Whenever you, my brethren, assemble in the interests of dental science, I will be with you in spirit."

We will ever welcome that spirit of love and progress, possessed in such large measure by our beloved brother.

We regret that we can no longer hear his words of wisdom, or feel the magnetic throb of his noble heart, but we bless and revere his memory.

J. L. PERKINS, }
R. M. CHASE, } Com.
G. F. CHENEY, }

EDITORS' SPECIALS.

TO OUR READERS.

OWING to the publication of the Vermont Society papers in this issue, we have been obliged to leave out our "All Sorts" and "Aftermath" departments, but they will appear as usual in the August number. It has been our custom for a number of years to print all of this society's papers in one issue of the JOURNAL, and, although occupying more space this year than usual, they make up an interesting number, and we hope our readers will give it their careful perusal.

B.

SOCIETIES.

AMERICAN DENTAL ASSOCIATION.

THE thirty-second annual session of the American Dental Association will be held at Niagara Falls, N. Y., commencing at 10 o'clock A. M., Tuesday, Aug. 2, 1892.

GEO. H. CUSHING, *Rec. Sec'y.*

MINNESOTA STATE DENTAL ASSOCIATION.

THE annual meeting of this society will be held at Minneapolis, Minn., commencing July 13, 1892; the sessions to continue for three days.

L. D. LEONARD, *Secretary*,
251 Nicollet avenue, Minneapolis.

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CONTRIBUTIONS.

CROWN- AND BRIDGE-WORK.*

BY GRANT MITCHELL, D.D.S., CANTON, O.

I APPRECIATE the honor conferred on me by your committee, in appointing me to a place on your program for this meeting of the Northern Ohio Dental Association.

I feel that it is one of the greatest of privileges. It affords opportunities for learning and improvement, that can be had in no other way. Points that are brought out in the discussion of one's own papers are impressed more deeply, I think, than in the casual hearing, or reading, the dissection of some stranger's work. And yet, I am not without misgivings in availing myself of the privilege, and must confess a purely selfish motive in accepting it; or, if I may inflict another man's joke, my reason for consenting to appear in this role to-day is because I feel that I can "do the greatest good to the greatest number. And that number is notoriously 'No. 1.' "

* Read before the Northern Ohio Dental Society, Cleveland, May, 1892.

The subject of this paper, Crown- and Bridge-work, is, to my mind, second only in importance to that of tooth saving. Its merit is shown in the steadily increasing popularity. Invented probably prior to 1840; lost sight of for a period; and again taken up some eight or ten years ago, since when its development has been of the healthiest possible kind. Crown- and Bridge-work is no longer a theory, but has grown to be a *fact*, that, in the hands of skillful dentists, will change our system of prosthetic dentistry.

I said my subject was *second* to that of tooth saving; let me retrace, and say that it is, indeed, an aid to and a part of that grandest work intelligent dentistry aims to accomplish. For what nearer approach to the *perfect* tooth saver have we than a well made and properly fitted crown—be it cap or pivot.

There are a multitude of methods for doing this class of work, and so much has been said and written on the subject, that I feel a description of any of the methods would be but a repetition, and exceedingly superfluous, except, in so far, as it may be an intimation of what has seemed to me to be good.

I have, as a general thing, but little sympathy with those *curiosities* that are occasionally presented, under the caption of "Novel Bridges." They involve, usually, complications in their construction that lend nothing to their permanence or usefulness. And in hands unskillful render the work more difficult of introduction, to the public, for those who are earnestly striving to do good, by reason of its liability to fail.

Right here it may be pertinent to remark, that *popular* dental education is a subject occasionally discussed by members of our profession.

I know of no better way to accomplish that end, than by doing work that will inspire confidence in our efforts and ability. There are comparatively few people, if any, who are willing to go to a considerable "expense" in having their teeth "fixed up," when the ghost of the work they have had done, points to the ultimate loss of the teeth.

We may speculate on the feasibility of introducing text books in public schools, and like methods, but the education that educates, is the one which demonstrates the ability of dentistry to save teeth—the one which changes the outlays of people from "expense" to investments in that which will profit them.

For these reasons I carefully avoid "juggling" in my practice. That is to say, I try not to go to extremes in experiment. My judgment suggests methods that seem to be improvements on those I had been using, which, if proven a success, after trial, I adopt.

The principles I employ in the construction of Crowns and Bridges, are old and simple. I am not tied, however, to any particular method. I use whatever my judgment suggests for the case in hand. If a Logan crown seems to meet requirements, (and there are many cases where it answers most admirably,) I do not hesitate to use it. I cannot see that a Logan is weaker by having its pin baked into it, than a crown wherein it is cemented. I do not use them, however, back of the anterior six, nor would I sacrifice a fairly strong lingual wall to adapt one. Preferring in such cases, to make a crown after the style of the "Richmond," and save any portion of the natural tooth that may add strength and permanence to the work.

On molar teeth, except where the progress of decay renders it utterly impracticable, I use cap-crowns. They are the best, and no morbid esthetic considerations should deter us from using that which is most durable.

In peculiar cases, where a tooth is so badly decayed or abraded that a gold filling would be very unsightly, and where the nerve is still alive and healthy, and an ordinary crown operation or even a filling would necessitate its devitalization, I have successfully crowned in a manner suggested by Dr. Dewey, of Cleveland, by beveling from the labial to lingual aspects, and making what is practically a cap crown, to which I fit a porcelain face, and mount in the same manner as a gold cap. In such a crown we sacrifice the minimum amount of tooth substance, display but little gold, and preserve the full vitality of the tooth. It makes, too, an excellent support for a bridge, and can readily be placed on bicuspsids, if it is desirable to avoid a display of gold.

I have here a specimen bridge, illustrating some of the methods of Dr. Hacker, of Indianapolis, that will appeal to us at least in the sense of durability. The piece I will hand to you for inspection, has a cuspid crown made, somewhat; on the principle just described, with the difference, that the porcelain facings are *cemented* in instead of being soldered to it. (I would say by way of explanation, that the spaces you will notice on the palatal side

of the piece, were left so purposely, in order to show how it is put together. In practice these spaces would be filled flush with solder.)

The construction of this kind of a bridge is, briefly, as follows: The roots and crowns to be used as anchorages, are prepared in the usual manner. Ordinary plain teeth of suitable sizes may be selected. The pins ground off as shown in the

Fig. 1.

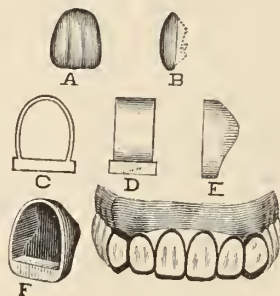


illustration (A. B. Fig. 1.) Stirrups of gold are then shaped around them; using about No. 14 or 16 gauges at the cutting or grinding edges (C. Fig. 1.) and No. 24 for hoops. Trim to contour, and solder on back of plates; making shells very heavy and thick enough to do all necessary contouring. Mount, on the model, and solder. Fill the shells with cement, fit in the fronts and round off the edges.

We thus have a strong bridge, on which none of the porcelains have been split or checked in soldering.

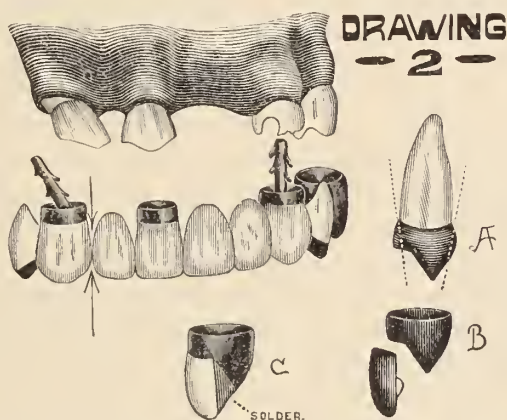
My usual practice, however, in constructing a bridge piece is that which is probably used by the majority of you, and is, I think, on the whole, the simplest, most reliable and certainly the most artistic.

As I made a piece, recently, that called into practice nearly all of the principles connected with this style of denture, I will describe the case.

A lady called at my office with the right superior first bicuspid, right superior lateral, left superior central and lateral, and left superior first bicuspid missing. The right superior cuspid through a peculiarity of the occlusion had been tilted forward in its socket, almost closing the space occasioned by the loss of the

lateral incisor. The central was abraded to more than half its length, and the left superior cuspid was decayed, and broken off near the gum. The other teeth, the first molar on the left, and second bicuspid, and first molar on the right, were in fair condition.

My first step was to tap the right superior cuspid, and make an application to devitalize the pulp. At the same sitting I prepared the other abutments for the bridge, by grinding square the abraded edges, and truing the sides of the central, with corundum wheels and disks. I next beveled the labial side, leaving a slight shoulder near the gum, as shown in drawing 2, fig. A.



A strip of block-tin, rolled to about No. 30 gauge, and a quarter, to five-sixteenth, of an inch in width, by one and a half inches in length, trimmed to approximate the festoon of the gum, was placed around the tooth as prepared, drawn close and held in position by the fingers of the left hand. With a pair of flat-nosed pliers, the ends of the tin band were grasped in such a manner as to draw it to an accurate fit. The band was then withdrawn, carefully straightened, and the ends cut just outside the marks left by the nose of the pliers. I then cut a strip of gold from the pattern thus made, beveled the ends on opposite sides with a hammer and anvil, bent into the form of a hoop, till the ends overlapped, and soldered with 20k gold.

I thus made a band that *fit* the tooth *at the neck*—the place where the bands ought to fit, and where *wire* patterns without the use of remarkable judgment, cannot succeed in doing it,

owing to the fact that the labial aspect of the tooth is usually much higher than the lingual, and a pattern much too large is the result. Nor do I believe—without seeing—that gentlemen who fit the gold in the mouth, using no pattern, do quite so well, because of the lesser degree of pliability in the gold.

My band was then beveled at the cervical edge and *driven* on—this, sometimes, requires no little force. I next burnished a plate of pure gold over the end and beveled surface of the tooth, inside the band, secured it with wax, removed, invested, soldered and returned to position. The labial side of the band was then trimmed, leaving a cap, such as is shown at Fig. B. A porcelain facing was then ground to fit, backed with thin platinum—the backing being held in place by bending the pins over it,* waxed in position, and carefully removed for investment and soldering. While waiting for the first investment of my central cap to harden, I prepared the left superior cuspid root, by grinding off the frail edges near the gum, and with excavators suitably tempered, the enamel was quickly and easily scaled off. A cap made as just described, except the cap was perforated and a pure platinum pin, No. 17, inserted, extending into the root, making the ordinary Richmond crown. My left superior second bicuspid was next in order, and with disks, flexo-files and corundum wheels of various sizes, this was soon reduced to proper shape for cap-crowning. In all cases using the block-tin patterns.

My patient was then dismissed to await the action of the arsenical application—returning next day with the nerve slightly sensitive, yet sufficiently dulled to sensibility to admit of its extirpation.

I then excised the crown, made a Richmond crown as described, with a pin standing off at a decided angle, as shown in the illustration.

My caps and crowns were all placed in position and a plaster impression taken, from which a plaster-and-marble-dust model was made. Dummies, backed in the usual manner, by burnishing thin platinum over the lingual side, investing, and melting coin scraps over the platinum surfaces, were mounted on

* My experience has demonstrated that this is the best way to hold the platinum backing securely in position, and it does *not* cause checking or cracking of the teeth as is sometimes claimed. If the platinum is permitted to *overlap* the ends of the tooth and gold flowed there over the contraction of the gold, on cooling, will surely crack the porcelain and that is about the only way it can be cracked—ordinary care only is necessary in heating and cooling.

the model; the whole invested as one piece, and the parts united with solder (using care, however, not to unite the right superior cuspid with the lateral incisor adjoining—making two separate pieces of it—the right lateral incisor *swinging* from the central abutment and the right first bicuspid swinging from the cuspid.)

In bicuspid and molar dummies, I have occasionally seen cases where ordinary plate teeth, or facings backed heavily, were used without protection at the grinding edges. They should never be so constructed. In all cases, cusps of gold should be swaged and soldered to the ends. The surface of any tooth, front or back, that comes in contact with its occluding antagonist, should be protected with gold, because the comparative rigidity of a bridge-piece renders the possibility of fracture of the porcelains, in mastication, far greater than it could be in the case of a plate, where the force of the blow is absorbed in soft tissues beneath.

In regard to *repairs*, I resort to radical methods; preferring to take a little extra trouble at once and do it well, rather than spread it out over time by trying to “fix it” *in the mouth* and having to repeat the fixing at almost regular intervals. I *take the bridge out*, repair it, and replace it. If it has been properly constructed the necessity for repairs occurs so infrequently that I can well afford to do this even at a sacrifice of some slight remuneration.

I frequently use bands for attachments. I like them better than to sacrifice a comparatively good crown. But I make them sufficiently heavy even at the expense of appearance, and recently I have been giving them additional strength by tapping and setting one or two gold *anchor screws* on the palatal side and, perhaps, one on the disto-labial. Screws in this connection opens an interesting field of speculation as to the extent to which their use may be advantageously carried. Space, however, will permit only the mere suggestion of this interesting feature at this time.

There are some operators who buy “Seamless bands” and ready-made cap crowns. I want to enter a protest against the use of such articles. I have infinitely less respect for ready-made bands or gold crowns, however limitless the variety, than I have for ready-made clothes. The fit may seem good to the man, whose want of experience leads him to use such things, but it is

only a matter of time 'till your bands and crowns "split up the back" and "bag at the knees" in a manner most damaging. A crown that is a shade too large may be "drawn in" until it hugs the root so tight that it is difficult to withdraw it, but that is *not fitting*. It must be so accurately made from an accurate pattern that a burnisher will *stretch it* into the little depressions without kinking, and that cannot be done with a band that was "drawn in."

I know no reason why men practicing *dentistry* should buy such things. The time necessary to construct a gold cap should not exceed thirty minutes, and the average cost of a molar crown with solid gold cusps, "made to order," is about one dollar and sixty cents. If you cannot easily make your gold bands and crowns, you cannot possibly make bought ones fit.

DISCUSSION.

DR. J. E. ROBINSON: After a careful reading of Dr. Mitchell's paper, a copy of which was kindly sent me, I find so few points to attack, that in a general way my "opening discussion" must partake more of the character of an indorsement than of adverse criticism. Still with the paper before me I am enabled to find a few points that, had I written it, would have been treated a little differently, though, perhaps, not so ably. Although the Doctor further on in his paper admits that crowning teeth and portions of teeth, helps to preserve them for further usefulness and renders what would otherwise be unserviceable, capable of renewing its functions, I must insist that crown-work is in fact tooth-saving and 'not "second only in importance to tooth-saving." To my mind crown-work, especially cap crowns, when made to take the place of large fillings in molar and bicuspid teeth, where on account of frail walls or inability to obtain good anchorage is tooth-saving par excellence. If carefully fitted and the shell or band made to extend beyond and well under the margin of the gums, teeth when largely decayed can be so crowned that good service can be had much longer than any filling of whatever material constructed can possibly do. Hence I call this tooth-saving. In regard to using porcelain crowns of the Logan or Bonwill stamp, I, too, am of the opinion that none but the six anterior teeth are so well or nearly saved, as by the shell or cap crown. Even in these teeth much better results are

obtained if the tooth is supported by a small band around the neck as well as by the post in the center of the tooth. The band on this class of teeth can be fitted so nicely and trimmed so closely that when finished it will have the appearance of a cervical filling and be no more conspicuous.

I have never crowned a bicuspid or seen one done by other operators that I did not think would have been better with the addition of a band. The different methods of setting crowns are in the main orthodox, and I will take none of your time in what must be a repetition of manipulation.

The beveling of the tooth where the nerve can be saved by so doing, is good practice as we are enabled to do away with a portion of the gold face which is more or less unsightly and supply its place with porcelain which, when carefully selected, can be made to harmonize with the surroundings.

On bridges all facings should be protected, and that can be accomplished without bringing the gold into prominence by a slight bevel at the cutting edge. Removable bridges are to me an abomination, so I will pass that portion of the paper with no further comment.

As a rule 'tis better to remove a bridge when a tooth or facing becomes broken before attempting to repair it, but often we are compelled to try to replace a facing with the bridge in place. I have here a few instruments suggested by myself and made by Dr. J. F. Stephan that have been of great help in such cases. You will see that by their aid after you have fitted the facings and drilled holes for the pins, that they can be made quite secure, in fact quite as secure as if riveted, which is the result practically attained. Perhaps it would be superfluous for me to add that whenever possible all bands should project to some extent over the cutting edge of the tooth to prevent pushing up through force of mastication. With these few remarks I leave the paper to be discussed in its other and perhaps more important parts by those who follow me.

DR. J. F. DOUGHERTY agreed with Dr. Mitchell in his methods of crown- and bridge-work, but did not approve of bands generally in bridge-work.

DR. G. MITCHELL does not use bands back of the anterior teeth, but thinks they will not creep up under the gum and cause irritation if they are properly fitted to the crown of the tooth.

DR. G. H. WILSON said that if a shoulder be ground into the lingual surface of a cuspid and the band fitted approximately, with the aid of the cement, it would not be so liable to displacement.

DR. J. R. OWENS thought crown- and bridge-work was being overdone. Of nine cases in ten where it is used it should not be. To band two teeth to replace one was not wise as it was only a matter of time until the banded teeth would be destroyed by decay under the bands. Gold crowns are excellent substitutes where the natural crown is gone, but to place them on teeth that could be filled, in his judgment was bad practice.

DR. J. H. WIBLE thought gold crowns preferable to fillings where it was necessary to largely restore the crown.

DR. DOUDS asked Dr. Mitchell how he removed a bridge when repairs were necessary.

DR. MITCHELL said if it was a band to be removed he generally used a bayonet forcep placing one of the beaks on the edge of the tooth the other under the further edge of the band and by gently bringing the forcep together the attachment was broken. In case of a gold cap he takes an engine bur, No. oo, and cuts a slit in the cap, folds back the corners and it is easily displaced. To reunite, bend back the corners, lay a small piece of platinum on the under side and flow solder into the space made by the bur. In case there was a post in the root he cuts off the post and removes from root by drilling around it with a suitable bur.

DR. J. R. BELL had seen enough bridge-work to convince him that it was the most dangerous work that could be placed in the oral cavity. It not only causes local trouble but often systemic. Some of the frequent results were abscess, neuralgia, etc.

DR. W. H. FOWLER said he had returned to the old-fashioned method of clasping. Wide clasps and rubber vulcanized on the tooth to rest against ridge and a small portion of palatine side of gums.

DR. L. L. BARBER thought if properly used bridge-work was a good thing, but the operator must use much judgment as to the advisability of a bridge and also in its construction. Much of the faulty work comes through lack of judgment on the part of the operator.

DR. H. E. DUNN said his experience with clasp plates had

been a sorry one. There must be more or less movement of the plate and that only aggravated the irritation. If confined to small pieces he thought bridge-work in suitable cases was better than filling. A nicely adapted band well burnished to the tooth will approximate a good gold filling.

ART IN DENTISTRY.*

BY G. H. WILSON, D.D.S., CLEVELAND, O.

[Discussions reported by W. H. McKerrall, D. D. S.]

ART implies the employment of means to a desired end, or acquired power of performing a certain act. The word conveys to us a conceived idea, or form, developed by cultivated skill and dexterity.

While we recognize that there is no part of manipulative dentistry but what is a conception, susceptible of the greatest skill and dexterity, we desire to confine ourselves to prosthetic dentistry, and that, to the commonly accepted application of the term, *i. e.*, the work, or a portion of which at least, is performed in the laboratory.

Prosth-e-sis is the restoring of a part which has been destroyed or lost, with a substitute.

Art in prosth-e-sis implies more than a substitute, a *re*-production in every respect that is possible for finite man. It is impossible for man to create cell structure, but it is possible for him to choose that material that will the closest resemble nature, then with skill and dexterity so fashion it, that we can say, that it liveth again.

As dentists we are more than artists, we must see more than color, symmetry, and contour, we must diagnose and prognose, the present and the future. We must consider usefulness and durability.

As professional men we must study the individual case and render a decision, what under all of the circumstances will be the best for the patient, our ease, profit, and ideal alone, not to constitute our judgment.

Nature and art has given us but one substance that is entitled to our respect from the artistic point of view; that is

* Read before the Cleveland Dental Society, April, 1892.

porcelain, a substance that is capable of the most delicate touch and finish of the artist.

It is true that the profession has as yet not learned to manipulate it very thoroughly and much is to be invented in the way of adaptation. It is an inviting field for study and will repay the labor expended. Because of its bulk and fragility it can never replace metal in all cases, for we must place usefulness first and art second, providing the one must be sacrificed for the other.

As we look about us at the mouths of our friends are we not justified in forming the conclusion that we sometimes forget that we are professional men and advise as an artisan, that we give advice based upon ease, profit and an advertisement for ourselves, and put aside healthfulness, usefulness and the requirements of art.

When a man can stand before a class of dental students and deprecate the use of shell crowns upon the six anterior teeth, depict the uncleanly and irritating qualities of an ill-fitting one, the unsightly and inartistic features in all cases, studiously avoid any instruction how to produce one, give explicit instruction in the manipulation of a bicuspid and molar shell, then the next day in the laboratory have the first student request instruction in a cuspid shell, and the second how to proceed to make a central shell, we are caused to reflect, and say, Oh the curse of early impressions. Then we ask, from whence were these first impressions?

Do we as dentists think enough upon the artistic aspect of our profession? Have we a refined sense of the shaping, shading and harmonizing of the human face divine?

Suppose we have a lady patient presenting, who has lost all of her teeth, the alveolar processes have thoroughly receded, and the muscles shrunken, what does the case require of us? Substitutes that will be healthful, useful, and beautiful.

What does art require? That we shall re-produce or produce that which nature designed she should have. To-day we have nature giving us more monstrosities in the dental arches than any other portion of the body—(but by the way, nature is not doing as badly as the dentist). We must select teeth of the size, mold and color to correspond with the other features of the face. They must be arranged in the arches to restore the angles and contour. They must be arranged singly to individualize and

characterize the patient. They should so harmonize with temperament and idiosyncrasy, that when a stranger shall see them, they shall say how beautiful she is, how nature has blessed her with hard, sound, good teeth; they do not appear as though she ever had to visit a dentist. Not what little, pretty white teeth she has, I wonder what dentist made those?

I think the good Lord will pardon us if we depart from what nature has mapped out for us, so far as to change the coarse brutal nature into a noble upright specimen of the likeness of his maker. Is it not better that the few be thrown off their guard because the creature does not look as bad as he is, then that the many shall be caused to shudder and recoil from the human being before him?

DISCUSSION.

DR. JACKMAN: I must take exception to the essayist in regard to "gold crowns" for anterior teeth. I would not be horrified if a student should ask me how to make a gold crown for anterior teeth. There are cases in which it is necessary to insert a gold crown, and I would rather see one than two-thirds of a tooth replaced by a gold filling.

DR. OWENS: Artistic manipulation in dentistry is quite as desirable as in any other work. Using plain teeth is an advantage hard to overcome because of the prejudice of patients. They prefer gum teeth.

DR. HARVEY: Gold crowns should be avoided on anterior teeth. I have made some porcelain inlays to avoid gold in anterior teeth. It looks very well but sometimes warps in heating, the color also is apt to burn out and is very hard to match. I think plain teeth are the most artistic.

DR. BELL: We must not overlook strength in substituting for natural teeth. Platinum works up nicely into crowns and looks well with teeth of bluish cast.

DR. BROWN: I don't admire gold in anterior teeth either for fillings or crowns. I advocate the use of plain teeth.

DR. PEASE: I find some objection to the weight of "continuous-gum work."

DR. WHITSLAR: We must be keen observers of physiognomy to be artistic. The better we deceive the eyes of the public the more artistic are we.

CARIES OF TOBACCO CHEWERS.*

BY L. E. CUSTER, D.D.S., DAYTON, OHIO.

THERE is a form of dental caries differing somewhat from caries in general which is found in the mouths of habitual tobacco chewers. Like "bakers decay" this may be termed *tobacco chewers decay*. It occurs in persons who have for years been addicted to chewing tobacco, and usually appears between the ages of 35 and 50 years.

These cavities form at those places where the tobacco finds lodgment and is undisturbed. The molars of both jaws are the usual seat of the lesion, but the second molar seems to be especially subject.

This form of caries appears at the gingival margin and generally in proximal positions. In the upper molars it sometimes extends around to the palatine surface and in lower molars to the buccal surface. The cavities are not round but usually oblong and deep. They appear with definite borders and except in proximal positions are easily prepared for filling. Another peculiarity about this class of cavities is that they nearly always extend under the gum. These cases seldom show progressive caries of the common variety in other parts of the mouth, which is probably due to the slight antiseptic influence of the tobacco. It progresses very slowly and is hard.

The cause of this peculiar form of caries is, I believe, the fermentation of the tobacco. This agent exerts a slight antiseptic influence at first, but when particles find their way into recesses where they lie undisturbed for a time they undergo fermentation. The constant change of saliva during the mastication and the antiseptic influence of fresh tobacco prevents the rapid development of caries.

The shape of the cavity is accounted for by the manner in which the caries begins. In proximal positions the tobacco fills the V-shaped space and the fermentation is most active at a line a little above and parallel with the gum margin.

These cavities never begin at the point of contact with an adjoining tooth. They are distinctly cervical cavities.

The dark color of the decay is produced by the slow progress and staining.

* Read before the Southwestern Ohio Dental Society, Washington C. H., May 17, 1899.

THE SKIN AND ITS APPENDAGES WITH SPECIAL REFERENCE TO THE DEVELOPMENT OF THE TEETH.*

BY M. H. FLETCHER, D.D.S., M.D., CINCINNATI, O.

MARK TWAIN showed a good deal of knowledge, and displayed a high appreciation of the extreme sensitiveness of that wonderful organ the skin, when he said he had found the best place to have a boil, and that that place was on some other fellow.

Mark had evidently either read the Book of Job, or had boils himself; for is there a disease of any other organ of the body that can bring about so pitiable a condition as that of the good old man Job when he was smitten with sore boils from the sole of his foot to his crown?

The skin is truly a most wonderful organ in many ways. Through it we receive many of the impressions that enter the brain, and thus add to our experience and knowledge.

Extending over the whole surface of the body, it may be regarded as a covering for the protection of the deeper tissues. It is flexible, pliable and elastic, and loosely attached to the tissues and the organs which it covers, so that it slides easily over them, allowing them ready play beneath it. In many parts of the body it is underlaid with a cushion of serous or adipose tissue which contains fat, thus insuring a smoothness, plumpness, and beauty of outline for the physical form.

In the palms of the hands, the soles of the feet, and the scalp, the skin is not so loosely attached however, but adheres firmly to the tissue beneath.

On the face and neck it is very loose, very flexible and pliable, as is readily seen in the manifold changes in facial expression, and in the free movements of the neck.

NERVE AND BLOOD SUPPLY.

It is very copiously supplied with nerves and blood vessels, and in both cases the branches which led to the surface are from the same nerve or vessel that supplies the deeper tissues, hence an explanation of how topical application can effect a deep seated

*Read before the Mississippi Valley Society of Dental Surgeons, Cincinnati, March, 1892.

trouble. The use of counter-irritants on the gums, for instance, in cases of inflammation about the roots of the teeth, often effect quite a happy change.

The same reasoning and plan of treatment can be counted upon in almost any part of the body, but more especially the joints.

The skin is the seat of one of the most important of the five special senses, the touch. In this respect we find its highest development on the tips of the fingers. It is surprising to what an extent the sense of touch can be cultivated. This is best illustrated in the case of blind persons.

Almost every one has heard of Laura Bridgman, who was deaf, dumb and blind. She was the first person so afflicted who became thoroughly educated. The chief means of reaching her mind was through the sense of touch.

A recent example of a similar, but much more marked character, is that of Helen Kellar, of Tuseumbia, Ala.

The skin is also one of the most important excretory organs of the body, in certain senses the most important. See what it contains :

1. Tactile, or touch corpuscles ;
2. Sweat glands ;
3. Sebaceous glands ;
4. Papillæ of skin ;
5. The hair ;
6. The nails.

And it also gives origin to the teeth, and to the crystalline lens of the eye, and to the more important parts of the nerves of special sense.

The sweat glands are about 1-300 of an inch in diameter. They are fewest in the region of the back and neck, where they number about 400 to the square inch.

In the palms and the soles there are about 3000 to the square inch.

It is estimated that there are two and one-half millions of these sweat ducts in the skin of the whole body of an average sized man.

This system of glands and ducts constitutes the sewerage system or the surface of the body.

It is estimated that if this two and one-half million ducts were extended and placed end to end, they would constitute

50,000 feet, or over nine miles of drainage of the system through the skin. One thirty-seventh of the carbonic acid of the body is also secreted through these glands.

The skin is also capable of performing the function of absorption. To such an extent is this true that life may be preserved, in case of serious disorders of the digestive system, by the absorption of nutriment and remedies through the skin. In this way a life may be prolonged sufficiently for the digestive system to recover and resume its work again, and thus a life be kept from going out.

In certain low forms of animal life there is no mouth nor stomach, nourishment being taken wholly by absorption through the skin. This type is illustrated in the tape worm. In this case, however, the food is digested by the animal upon which the parasite lives, and is then assimilated by the worm.

TISSUES DEVELOPED FROM THE SKIN.

It does not seem so impossible that one might almost have "nerves of steel" when we know that the enamel of the teeth—the hardest of all animal tissues—is developed from the skin, and at the same time the softest of all animal tissue the brain and nerves, are developed from the same source.

Just see what a variety of organs we have developed from the epithelium or that organ from which is formed the outer coat of the skin, and how widely they differ in appearance and form.

The enamel of the teeth, and the brain.

The crystalline lens of the eye, the callous of the heel and the palms.

The nerves of special sense, and the nails.

The hair which may be cut at will, and that extremely sensitive organ, the pulps of the teeth. The latter, however, are developed from a deeper portion of the skin than the others. And lastly the important parts of the senses of hearing, smelling, and tasting.

ANATOMY.

The skin may be divided into three layers:

1. The upper or outer layer is the epithelium, cuticle, or epidermis, modifications of which form all kinds of hard horny out-growths or appendages of both animals and plants.

2. The *rete mucosa* or papillary layer, which contains the papillæ, and which papillæ are highly vascular, and contain the touch corpucles.

3. The *cutis vera*, or true skin, which is the foundation for the other two layers, and is composed largely of connective tissue, holding in its meshes the fat of the skin, the sweat glands, the hair follicles, and from which the pulps of the teeth are developed.

The three layers are developed originally from the epiblast and mesoblast of the blastoderm. Here a model of the blastoderm with its three layers was displayed, and the manner of the different tissues from them explained.

SKIN OF PLANTS COMPARED WITH THAT OF ANIMALS.

Plants have a skin comparable to that of animals. Dr. Merrill Ricketts has compared the two as follows:

“Animals and plants alike have a circulatory and a respiratory system. Animals have a two-fold advantage over plants in that they have both the lung and external covering by which the act of respiration is carried on, while the plant has but the external covering, the skin. The skin of plants does not fill as many offices as does that of animals, yet there are many functions in common, viz., that of absorption, protection, sensation, and of respiration.

In addition to these, it serves in animals as an organ of excretion, perspiration and the regulation of temperature. Their origin, structure and development, are practically the same, both having epithelium, from which the appendages of each develop.

There is a correspondence from the shining coat of the polyp, to the thick hide of the rhinoceros. Even the loose skin called the mouth, which envelops the body of the mollusk, corresponds to the true skin of the higher animals, but we find it more highly developed in mammals. The dermis consists of a sheet of tough elastic tissue, composed of interlacing fibres, blood vessels, lymphatics, sweat glands and nerves. It varies in thickness from the sixtieth of an inch to three or more inches, the thickest skins of both animals and plants being found in the tropics, a very singular fact indeed, especially when considered from a projective standpoint.

Destroy either or all of the five senses, remove if you will a

lung, a kidney, the spleen or pancreas, still we find that life can be sustained indefinitely.

Remove a branch, a leaf, a flower, or the fruit, we likewise find that life is sustained.

How different it would be if we were to divest any animal or plant of its external covering. To remove or destroy one-fifth of the dermal covering of either would cause almost instant death.

By dermal covering I mean the skin or external membrane of either animals or plants. Its office in each is to protect, however it varies in structure.

In the animal it is composed essentially of an internal layer formed principally of connective tissue, and rich in vessels and nerves, called the true skin or derma, and of an external layer composed of cells only, called the epidermis. It contains in addition many peculiar glandular and horny organs. In the plant it consists of epithelial tissue, husk, and bark. Although they vary in structure, there is a similarity. That found upon animals comprises that part of the skin which is raised in a blister, and called the cuticle or scurf skin."

Many animals secrete from their skin such substances as form a means of protection for their bodies, or a house to live in, such as snails and other mollusks, the oyster and other shell fish, and the many bright and beautiful forms of coral.

The covering of the entire family of the crustaceans, is a production of the skin, and serves the place of an internal bony skeleton such as is found in the vertebrata. This is seen in the coat of mail and the wings of insects. The covering of all worms, whether it be the crust of the centipede, the slimy surface of the earth-worm, or the hairy coat of the caterpillar, all are variations of the epidermis. Again the scales of all fishes, the horny coat of the alligator, the shells of the tortoise and the armadillo, and the quills of the porcupine are modifications of the skin.

One of the most beautiful productions of all nature is seen in the feathers of birds. Their varieties of beauty in form and color are almost endless. Feathers, together with the beaks and claws of birds, are developed from this same source. The hair and the fur, the claws and the hoofs of animals, and the hair and the nails of human beings, are appendages of this wonderful organ.

And last, but not least, among the appendages of the skin are the teeth of all animals, including man [excepting certain classes of fish]. The tusks of elephants and walruses are simply enlarged or elongated teeth.

In the vegetable kingdom bark is another name for the skin.

The leaves of trees and plants, and, conspicuous for their fragrance and beauty, the flowers of the vegetable kingdom, tan-bark from the oak, corks from the bark of the cork-oak, canoes and other useful articles from the bark of the birch tree, these and others of the necessities and conveniences of life are derived from the skin of vegetables.

"The thorn of the honey-locust develops and falls off to give place to a new one, about the same process of development or shedding, as takes place with the horns of deer and other animals. In the higher animals the epithelial scales are constantly being removed and replaced.

In lizards and serpents the old epidermis is cast off entirely, being stripped from the head to the tail; in the toad it comes off in two pieces; in the frog in shreds; in fish and some mollusks in the form of slime.

However modified, the epidermis or whatever its appendages, a like process of removal goes on. Animals shed their hair, horns, and nails; birds their feathers; and crabs their shells.

Desquamation, or falling off of epithelial cells, takes place throughout both kingdoms. Specimens of both animal and vegetable epidermis under the microscope reveal cellular structure, and their offices are the same, namely, that portion of animal epidermis called the rete mucosum contains the nucleated cells and pigment or color granules on which the color of the animal depends."

The utility to mankind of the skins of animals and plants is a matter of experience and record from the remotest antiquity. Among barbarous and uncivilized races the skins of animals have, in large part, furnished their simple clothing, and at the same time their best protection from cold and from the constant dangers of injury from their rough surroundings. Teeth and horns of animals are used for weapons of defence and articles of adornment.

Indeed, in a sense, man's progress from barbarism to civilization is indicated largely by his skill in utilizing the pelts of ani-

mals, and the fiber of the bark of plants and trees for clothing of his person, and tents for his housing. Bark, fiber, wool, and fur, are the materials out of which mankind first learned to make cloth, and there is no one present in this audience to-night but that is indebted to the skins of animals or plants for the clothing he or she wears. Our shoes are made of leather, and our clothing of wool, cotton, linen, or silk.

Here followed a stereopticon display of fifty lantern slides, mostly photo-micrograph of the skin and its appendages, including sections of embryo chicks, to show the manner of development of the epithelium.

INFECTION.*

BY H. L. AMBLER, D.D.S., M.D., CLEVELAND, O.

THE paper which I present for your consideration consists of a few thoughts on Infection by leading thinkers.

The science of bacteriology has so grown and developed within the past few years, as to reach with almost equal importance the domains of medicine and surgery, and to touch most of the therapeutical questions involved in the treatment of medical and surgical affections. It has an important bearing on the prevention and treatment of disease, while it has a connection, also, with the period of convalescence. Bacteria as a cause of disease is taken for granted, and in the mouth their growth is rapid, infectious varieties have been found here and they are easily propagated; temperature, air, water, and food, give them the very best opportunity for flourishing. There are over one hundred different species present at one time or another in the human mouth, but some of them do no harm. In two days a bacterium will multiply to the almost incredible number of 281,500,000,000, and it takes 636,000,000 to weigh one gramme. Two hundred years ago Lecuwenhoek described and illustrated a germ, spiral in form, which he found in the mouth, the entire group was classed under the term microbe, and he said they could not penetrate the dentine, except so far as it had been softened by some means.

Pathogenic organisms are found in putrescible matter, and

* Read before the Northern Ohio Dental Society, Cleveland, May, 1892.

also have power to attack living tissues ; these forms, including the pyogenic bacteria, are of great importance to dentists. Non-pathogenic organisms can only live and grow in dead and dying matter. When the system is in a debilitated condition these germs plant themselves and grow most rapidly. At times it is not absolutely necessary to have an abraded mucous surface in order to permit of infection. The changes of putrefaction are dependent upon a living organism and a nidus for its life ; substances interfering with the organism causing these changes are termed antiseptics. Suppuration is one of the phenomena attending the efforts of certain germs to invade the tissues, prevent invasion, and you prevent suppuration, and disinfection is any means put into use for the destruction of these germs. Antiseptic surgery was started on the foundation established by Pasteur, that germ-laden air is directly instrumental in causing putrefaction and the fundamental principle of modern surgery is antisepsis. Fracture of the jaw with penetration of the soft tissues, extraction of teeth, gum-lancing, dead pulps, ulcers, abscesses, broken teeth and poorly fitting plates present opportunities for infection, but we do not always find infection following such injuries ; if the bacteria are scarce, the repair cells are victorious and no disease ensues. The chances of infection from any cause whatever should always be thought of and precautions used. The ear, nose, throat, parotid gland and antrum, may become seats of infection which will more or less affect the mouth, or infection of the antrum may take place from the nose, or from inflammation of carious or abscessed teeth. I impress it on patients to keep the mouth in an aseptic condition by the use of the brush and antiseptic washes, such as diluted listerine or peroxide of hydrogen which is a germicide. In manipulations be as cleanly as possible, this includes thoroughly cleansing the hands and instruments with antiseptics. It has been demonstrated that infectious germs are present on the hands and under the nails, but thorough washing with soap and brush will remove all easily detachable epithelial germs, after which rinse in the following : one dram bichloride of mercury, one ounce of alcohol mixed ; one-half of a teaspoonful of this mixture to one pint of water makes about one of mercury to 2000 water, this can be further diluted if it does not agree with the hands, as some claim that 1 to 5000 is of sufficient strength. Grosvenor and Richards

manufacture tablets composed of equal parts of bichloride of mercury and chloride of ammonium, one of these dissolved in a pint of water makes a 1 to 1000 solution, but the strength can be altered at will; clean the nails before using either preparation, and afterwards rinse the hands in pure water. In abdominal operations the hands are immersed in a saturated solution of permanganate of potash until they are mahogany red, then transferred to a saturated solution of oxalic acid until they become pink, then washed in warm sterilized water, this renders them completely aseptic. Instruments can be sterilized in boiling water containing five per cent. of corbolic acid or in the bichloride mixture; but if the latter is used great care must be taken or they will become rusty; baking them for a few moments at a temperature of 300° in a gas stove is highly recommended; moist heat applied for twenty minutes accomplishes sterilization, and it can be successfully applied by Arnold's steam sterilizer. Instruments are not apt to lose polish or rust unless cooled before wiping dry. Organic matter yields last to the destructive influence of micro-organisms, and where softened dentine is left over a pulp and the cavity filled we may cover in microbes and they may produce products which will destroy the pulp thus producing infection. In such cases do not use any medicament which will produce coagulation, but desiccate the softened dentine, with warm air and apply oil of cassia which is diffusible, penetrating and will destroy the microbes; some prefer oil of cassia and oil of cloves, equal parts; myrtol is also recommended because it is non-irritating and a powerful antiseptic; lysol, which is soluble in water, is used for the same purpose. A decoction of cinnamon ought to be taken freely by persons living in places affected by typhoid or cholera. In the oldest medical prescriptions for infectious diseases, cinnamon was a prominent ingredient, and it was in great request during the plague of London; and it is claimed by many that oil of cassia will destroy microbes as effectually and rapidly as bichloride of mercury. Pyæmia is infectious, for the products poured out by the micrococci, which are from $\frac{1}{10000}$ to $\frac{1}{25000}$ of an inch in diameter, poison the blood and the absorption and dissemination of the poison gives rise to general disease and also abscess. While in his office Dr. E. accidentally inoculated himself and in a short time had an abscess large as his hand. Dr. B. unfortunately cut his finger with an instrument he

had been using in a decayed tooth, the result was pyæmia which incapacitated him for several weeks. We will surely be more successful in the treatment of lesions of the mouth and teeth by careful attention to antiseptis. Where the saliva is in a septic condition caused by pyogenic bacteria from alveolar abscess, it can be rendered inert by using a solution of one part of peroxide of hydrogen and two parts of water, a spoonful held in the mouth for five minutes will destroy a large number of germs and oxidize minutest particles of dead organic matter which have not been removed by floss and brush. Infection of the general system may be produced by a diseased condition of the mouth, as the microbe which produces pneumonia, erysipelas, and septicæmia, have been found in the oral cavity. Great numbers of germs are constantly being swallowed with the saliva, and some of them are ready to do us harm. The cleaner the mouth is kept the more slowly will microbes develop. Tooth powders and tooth washes should be strongly impregnated with oil of cassia which will act as a prophylactic.

DISCUSSION.

DR. A. J. DOUBS: The communication of disease by infection is different from that of contagion as actual contact is not essential. Perhaps but few if any of the diseases affecting the teeth and contiguous parts are strictly speaking infectious, as means of conveying the disease other than by the medium of the atmosphere and other inert substances is necessary. The essayist refers to pathogenic organisms as having the power to attach living tissue, including pyogenic fungi.

If I have read correctly the latter feed upon and multiply in the inflammatory exudates, pus formation being the result and from its presence alone, but having no power to attack living tissue. Subdermal fractures, with rare exception, heal without suppurating, and as these fungi exist in the atmosphere, some medium of communication with the seat of the lesion is essential to the formation of an abscess. Injected into a vein of the rabbit's ear the fungus was conveyed to the subdermal fracture, and in every instance resulted in the development of the same species and acute abscess.

The nerve of a tooth may die due to thermal influences after a thorough filling operation, and in many cases causing but little

inconvenience except a slightly inflamed condition at the apex, thus presenting a condition very similar to that of the subdermal fracture. This condition may continue indefinitely until through some systemic condition favorable to the absorption from the atmosphere or some other source, the pus germ is conveyed to the point of inflammation and immediately acute alveolar abscess will follow.

Dead teeth and roots filled with septic matter often remain for years without occasioning inconvenience other than in some cases the soreness at the point of the root. Yet the pyogenic germ, having nothing to feed upon in the septic contents of the root canal, fails to reach the seat of the trouble through this channel. Yet there comes a time when the systemic conditions referred to are such as by some means to convey the pus germ through the medium of the circulation to the part and we have the inevitable abscess.

A "billious" condition so-called, seems to be one which I may say almost invariably precedes the formation of an alveolar abscess in the cases referred to, and apparently furnishes the conditions favorable for conveying the pus germ to the inflamed part. It is characterized by a peculiar coated condition of the tongue and discoloration of the sclerotic coat of the eye, easily recognizable. A timely correction of this condition by the exhibition of mercurial or other suitable remedies will in a large percentage of cases result in resolution and a temporary cure. I have been led seriously to doubt whether the presence of septic matter remaining in the root canal will cause alveolar abscess *per se*.

By the methods of the past, now obsolete, when the importance of a thoroughly aseptic condition was unrecognized and unknown, the most careless operations were in a large percentage of cases unaccompanied by any serious results other than more or less irritation, and I believe due to systemic conditions not favorable to absorption of the pyogenic germ as referred to.

This subject is too broad to admit of anything but a very desultory discussion of a few points as observed in practice, and as indicated by the essayist it is a subject which commands the earnest attention of every progressive dentist, and to ignore the importance of as thorough a knowledge as possible of the important part played by the various forms of bacteria in the phenom-

ena of diseases of the teeth and contiguous parts, is to lack the requirements of intelligent practice.

DR. H. F. HARVEY: This is an interesting subject to us as cases are frequently presented for our care which come directly in the line indicated by the paper. If we are to treat such conditions intelligently our therapeutics must be based upon some consistent theory of the pathological conditions which we endeavor to combat. The germ theory of infection is recognized by most scientists as being the most rational, and the accepted test of identity of many diseases is now bacteriological.

In a recent article on the subject of traumatic infection the writer (Starke) says: "The time has come when the whole pathology and etiology of infectious diseases should be re-written from the standpoint of the germ theory." There are two distinct forms of sepsis now generally recognized. One caused by the introduction into the circulation of preformed ptomaines from some local focus of putrefaction. The other variety of sepsis, the real septic infection (progressive septicæmia), is not caused by the germs of putrefaction or their products, but rather by certain micro-organisms which, entering the circulation from without, retain in the blood the power of reproduction and multiplication. The formation of pus at the primary wound is not essential for its production. The reason why we should have suppuration in one case and septicæmia in another both from the same germ is not apparent.

The actual poison in cases of septic infection is probably not always the same. I believe it is still a question whether in the production of pus we invariably have an infection with some pyogenic micro-organism. Experiments have been made on rabbits with subcutaneous injections of aseptic metallic mercury, and pus formed in which none of these organisms could be found with microscope or culture methods.

The line between infectious and contagious diseases is not always distinctly drawn, some being both infectious and contagious. Syphilis is not, strictly speaking, an infectious disease, it is contagious; but if the contagium of a syphilitic ulcer be introduced into the circulation of a non-syphilitic person by means of our instruments, or otherwise, that person becomes *infected* with the disease.

In connection with the two cases referred to in the paper, I

will add that of an accountant in one of our stores who recently in taking a pin from his desk made a slight wound on his finger to which he paid no attention at the time. The next day he noticed a little soreness at the point. This continued until the whole arm became involved and he was obliged to go to the hospital. Why do we have such serious results from apparently so slight a cause? I believe that same pin might have been inserted into the finger of some other person or into his own at some other time and no serious results follow. There is in the constitution of the individual something that determines the fact of infection, and also the cause and character of the results of infection.

It has been stated by some writer whose name I do not now recall, that in his opinion there exists a certain co-relation between the rapidity of absorption and that of elimination; but if from any cause this harmony is disturbed and the poisons remain for any length of time unabsorbed they will exercise their noxious influence locally and afterward on the general system. It has also been shown that if the absorptive capacity of the tissues at the seat of infection be diminished the septic processes are encouraged, and on the other hand, that the rapid absorption, destruction or elimination of pus-microbes prevents septic infection.

From this, then, it would seem that the rational treatment would be, antiseptic, stimulant and eliminative. To show the value of antiseptics I wish to quote from an article by Prof. Dennis, of New York, on compound fractures of the thigh. He has collected statistics of a large number of cases from several of the large hospitals in this country and Europe, and extending over a number of years previous to the introduction of antiseptic methods in surgical practice, and also since Prof. Lister's experiments were made from 1867 to 1870 and the general adoption of antiseptic methods in surgery soon followed. Previous to this time the mortality from septic poison in the cases referred to, averaged from 40 to 45 per cent. After the introduction of antiseptic methods it immediately fell to 4 per cent., a strong argument in favor of antiseptics.

I hope the subject may be continued and to hear from others, for as Dr. Douds has said there is much that demands our "earnest attention," and we cannot hope to exhaust the subject.

ALL SORTS.

BURNISHING ALUMINUM.—A mixture of equal parts of olive oil and ruin is recommended for the burnishing of aluminum, after which it is buffed.—Dr. HASKINS, *Review*.

PROTECTOR.—Dr. W. H. WHITSLAR, Cleveland, uses small pieces of cottonoid under rubber-dam holders to prevent the impression marks being left on the cheeks. Try it.

FOR QUICK DRYING OF CAVITIES after the rubber dam is in place, fill the cavity with chalk and blow it out with a chip-blower. It may be used to dry a wet ligature which it may be inconvenient to remove.—*Review*.

A CONVENIENT HANDLE.—Dr. HENRY BARNES, Cleveland, takes base plate gutta-percha, warms it and moulds around the end of broaches or other small instruments; when cooled it answers admirably as a handle.

LIQUID VASELINE may be used to saturate cotton as a temporary covering for medicaments in the root of a tooth when it will not bear the pressure of varnish or gutta percha. It will endure two or more days without becoming foul.—*Review*.

TO REMOVE RUST stains from nickel plate, grease the rust stains with oil, and after a few days rub thoroughly with a cloth moistened with ammonia. If any spots still remain, remove them with dilute hydrochloric acid and polish with tripoli.—*Off. & Lab.*

CEMENTS.—I would make a suggestion with regard to cements: the powder, when of long standing, absorbs moisture, which sometimes impairs its virtues. It can be restored to its original condition by heating in a porcelain dish over a sand-bath.—Dr. MEAD, *Inter*.

BE THOROUGH.—In the preparation of a cavity of decay *never be in a hurry to fill*. Be sure that it is well shaped, that the margins are made smooth and well defined, and the approach easy. Much time and vexation will be saved if this be observed.—Dr. CHUPEIN, *Off. & Lab.*

A GOOD BURNISHER.—The other day I needed a burnisher for a gold filling. I happened to find a glass bead of the proper shape; I placed it on an old engine bur, and had a beautiful instrument. I cemented with shellac, being sure the head was hot enough to melt it.—DR. BOGUE, *Inter*.

A SMALL sized wooden screw, screwed into the root of a tooth, answers well for packing gutta-percha or composition around; when we want to force the gum out of the way, leave it two or three days. The head of the screw serves to hold the material in place; no danger of its coming out when once set.—DR. BEACOCK, *Dom. Jour*.

A GOOD RUBBER HEATER is easily constructed by taking a shallow round tin pan and soldering a cover on it, leaving a water space of less than an inch through this top, make a round hole to which a short tin tube is soldered for the escape of steam.

It will keep your rubber warm sufficiently for packing in the flask much longer than on a disc of tin, and there is no danger of burning it either.—W. W. DAVISSON, *Items*.

IN filling a cavity in the anterior part of a lower molar that is well down under the gum, the bicuspid missing, it is sometimes difficult to keep the rubber down even when a clamp is used. Take a thin piece of metal, German silver or Taggart tin, fit it neatly between the teeth. When the rubber is adjusted, press this firmly down; it will carry the rubber below the edge of the cavity and hold it there.—DR. BEACOCK, *Dom. Jour*.

A NEW BACILLUS IN THE MOUTH.—SCHMIEGELOW has cultivated a new bacillus living in the mucus of the mouth of man; it formed on gelatin whitish masses resembling the cultures of bacillus anthracis, which the bacillus also resembled by microscopical examination. Mice were killed by inoculation of it after twenty-four hours, while rabbits survived three days; a hen and a pigeon proved refractory to the inoculation.—*Bibliothek für Laeger*.—*Satellite*.

JUST SO.—Many of the papers and discussions at the Northern Ohio Dental Society were of practical interest to physicians as well as dentists; but so far as we know no physicians were present at the meetings of the society. It is to be regretted that

the bond of union between the dental and medical profession is not much closer. There are many things that the doctor can learn from the dentist and we are confident the dentist would gain much by coming in contact more frequently with physicians —*Cleveland Medical Gazette.*

COTTON WASTE HOLDER, to make: Take a deep glass or porcelain box, such as a tooth-powder box. Cut two slits in the top of the metal screw cover, in the form of a cross, one inch or a little more in length; press down the four points into the box; the slits will catch the cotton and pull it off the pliers or excavator. By putting in a piece of sheet lead cemented to the bottom or a little shot to weight it, every dentist may make himself a very handy little receptacle for bits of waste cotton, bibulous paper, etc., without taking off with his fingers. It is always clean, easily made and self-acting.—DR. BEACOCK, *Dom. Jour.*

TO AVOID BREAKING BLOCKS, when vulcanizing, grind the tops square and don't let the rubber come over them; in waxing up the case scrape off the wax level with the face of gum, then when the rubber shrinks it will draw over the square ground surface without cracking the thin porcelain. I learned this from casting aluminum, the smallest overlap anywhere, when using this metal, will result in fracture. Another caution is not to have any air-bubbles in the plaster at the back of the gum, and be careful when pressing the flasks together to give the rubber sufficient time to spread and adapt itself over the matrix left by the wax. Broken blocks are the result of either carelessness or ignorance.—DR. BEACOCK, *Dom. Jour.*

GOLD ALLOYS.—PROF. ROBERTS-AUSTEN has drawn attention to the fact that the properties of gold are changed in a most remarkable manner by alloying it with small percentages of other metals, and he lately exhibited a new series of alloys of this metal with aluminum. One of these alloys, containing 20 per cent. of aluminum, forms an exception to the usual rule that the melting point of an alloy is lower than that of either of its constituents. This alloy has a fusing point above that of gold, the most infusible of its constituents. Curiously enough, the alloy with 10 per cent. of aluminum follows the ordinary rule. These alloys have the most brilliant colors. The 20 per cent. alloy is a

brilliant ruby in tint, while those containing greater percentages of aluminum are purple in hue.—*Scientific American*.

INTRA-VENOUS INJECTION OF SALINE FLUID IN GRAVE HEMORRHAGE.—K. POULSEN, of Copenhagen, has been very favorably impressed with the action of the intra-venous injection of salt water (tepid distilled water, 6 per 1000 salt, and a little hydrate of soda) to the quantity of about 3000 cubic centimetres (3 quarts, into the veins of the arm of a woman aged 36, who had complete collapse (no radial pulse), after a severe hemorrhage from the infra-orbital artery, occurring during resection of the superior maxilla for a carcinomatous growth, which had entirely involved the parts about the artery, making the arrest of the hemorrhage extremely difficult. Although the patient, before the injection, had been lying in a dying state, she was able, a few hours later, to give birth to a child safely.—*Bibliothek for Læger*.—*Satellite*.

DENTAL PROSTHESIS.—Many suppose that dental prosthesis requires no knowledge other than abstract mechanics or merely manual skill. It is just here, however, in the preparation of artificial dentures that the highest workmanship is called for. Each case involves the necessity of the possession of sufficient knowledge not only of the physiological, but of the physiognomical, condition of the mouth, and skill to restore what is lost. We must first learn to appreciate nature's own work before we can expect to even approximate such perfection. From the similarity of the majority of artificial teeth, there is room in the profession at large for greater study and more artistic work in this branch of our profession. The closest study is needed here to correct the meaningless "horseshoe-style," so prevalent throughout the country. And how often we see even, white teeth where every feature cries out against them. We could hardly find two people with exactly the same facial angle and conformation. The patient's individuality should be well studied before an attempt is made to prepare an artificial denture. The temperament, contour of the face and body, the complexion, age, etc., should be considered, and the artificial denture be constructed in accordance with these physiognomical and other requirements.—DR. WARREN, *Inter*.

OPENING ROOT CANALS.—A bur is a very dangerous thing to introduce into a pulp chamber. If it be necessary to enlarge the opening into a canal, the excavator is the only safe instrument, for it is comparatively easy to know what progress has been made with it, and the advance is slower. The bur buries itself in

its own debris, so that its exact position cannot be definitely determined, while the tremulousness of the handpiece is fatal to all delicacy of touch.

But with the greatest care in searching for root canals, and with the utmost pains in the attempt to enter them, there will still remain a percentage that must remain unfilled. They are so minute, perhaps, that the most delicate instruments cannot be introduced, or they are so tortuous that it is impossible to follow them to the apex. If sufficient time be given for the sloughing of their contents, and if antiseptics be allowed to remain until they have thoroughly penetrated them by absorption, they may, probably, safely be left to nature's care. But if one would know how best to obtain access to root canals, he must do what we urged at the commencement of this article—study well the forms of extracted teeth.—*Extract from Ed. in Dental Practitioner.*

CAUSE OF FAILURES.—In answer to the following query: What is the cause and remedy for a plate which, when inserted in the mouth, requires some effort to remove, but shortly after will not "stick" at all? DR. HASKELL says: Faulty articulation is responsible for more failures in dentures than any other cause. The best fitting plate, with good suction, is often displaced by the closure of jaws when patient swallows saliva, or the jaws necessarily close tight. This is sometimes when the anterior teeth meet first, and should not meet at all; when a second or third molar pitches forward at an angle of forty-five degrees, meeting an upper in such a manner as to crowd the plate forward, or when the bicuspid meet upon one side in advance of those on the other.

The second cause will be found in the plate not being in sufficient close contact at the posterior margin or in the center. It may be pressed up so as to exclude the air, yet will spring off. Third cause may be from the plate pressing too hard in the center, causing it to gradually loosen. Fourth cause is when vacuum cavities are used in mouths where the palate has a high ridge, and in such cases the vacuum cavity is positively detrimental. Simply raise the plate over this hard prominence, leaving a resting-place on posterior edge to exclude air.—*Items.*

PHAGOCYTES.—It is well known that the introduction into the body even of extremely virulent species of bacteria does not

always cause disease. It is furthermore established that when recovery from a bacterial disease occurs, the germs after a time disappear from the body. These well known facts show either that the body possesses the power of directly destroying certain bacteria, or of furnishing conditions which are so unfavorable for their life that they die.

It is believed by many that certain cells of the body are capable of taking up bacteria, which get into the tissues, into their protoplasm, and there destroying and perhaps digesting them, and that thus the destruction of bacteria in the body may be brought about.

Others believe that certain of the body cells, the leucocytes, for example, which are often found gathered about masses of bacteria in the body, cut off the supply of oxygen or nutriment from the germs and thus cause their destruction.

The cells which take up into their bodies the bacteria, as well as other foreign bodies, are called phagocytes. This assumed mode of destruction of bacteria forms a most suggestive and fascinating hypothesis, but its significance and importance are not yet very fully demonstrated.—DELAFIELD-PRUDDEN, *Pathological Anatomy and Histology*.

PAIN OBTUNDERS.—The following formulæ have proved very helpful in my practice in relieving the pain attendant upon the preparation of sensitive cavities of decay and preventing nervous exhaustion :

Croton chloral hydrate, grs. x ;

Bourbon whiskey, $\frac{5}{3}$ i.

Sig.—Twenty minutes before operating.

Morphia sulph., gr. $\frac{1}{4}$;

Bourbon whiskey, $\frac{5}{3}$ i.

Sig.—Thirty minutes before operating.

Potassium bromide, grs. xx ;

Cinnamon water, $\frac{5}{3}$ ii.

Sig.—Thirty minutes before operating.

Potassium bromide, grs. x ;

Croton chloral hydrate, grs. x ;

Cinnamon water, $\frac{5}{3}$ ii.

Sig.—Thirty minutes before operating.

A wise use of those constitutional remedies, supplemented with the local treatment usually employed, give material aid in relieving the

suffering and nervous apprehension of the patient. And if coupled with an educated judgment and quick perception as to the general physical and mental conditions of those presenting themselves for dental operations, and the amount of fatigue and nervous irritation that they are likely to endure with safety, will do much to remove the dangers of such operations, resulting in shock or collapse.—DR. J. S. MARSHALL, *Inter.*

HOW TO TAKE CARE OF A CASE OF PULPITIS and not take out the filling. Open directly to the pulp chamber at such point as the case indicates. But some one says, the tooth is so very tender and painful; support the tooth by tension with a ligature or by the thumb and finger. Gentle dealing and a full understanding of what is needed. When the pulp is reached and it bleeds, as it is quite sure to do, the pain will ultimately subside; yet to alleviate the pain sooner apply a pad of Japanese paper saturated with tincture of aconite, and the case comes under control. It may require renewal. Many cases can be so restored to usefulness, but I think a majority destroy the pulp after controlling the pain. After we secure relief from pain, if we think of trying to save the pulp, we dress the pulp with tincture of aconite, combined with oil of cloves, and stop the opening gently and loosely. To protect the tooth against mechanical disturbance we apply a gutta-percha cap to an adjoining tooth which lifts the teeth apart. This we allow the patient to wear until the case is free from tenderness. The gutta-percha cap is pre-eminently valuable in cases of pericementitis. We have used it in hundreds of cases during the last thirty years, and are indebted to Dr. Wm. B. Hurd, of Williamsburgh, Brooklyn, Eastern District, for the suggestion. We always like to give credit for such helps; we do not think it is done any too often.—*Er. in Dent. Review.*

TO IMPROVE COPPER AMALGAM.—*Dr. Bödecker:* About three years ago Dr. Herbst, of Bremen, wrote me a letter about using amalgam, saying that he had very wonderful results if he added to it, before putting it into the tooth, a little fine silver foil. I tried that, and it worked as described,—namely, that the edges will stand beautifully, and there will almost be no wasting. At that time I made some experiments in glass tubes, and filling them with carmine, but I never saw any of the fluid between the tube and the amalgam. I tried the same experiment with copper amalgam, and I was surprised at the success. The discoloration

of the copper amalgam which we usually observe is almost entirely gone, and it gets very much harder and wears better. It is done in the following way: When the amalgam is heated very carefully and put into the mortar, a little mercury is added, and the amalgam crushed and rubbed thoroughly; then to about eight grains of copper amalgam I add one leaf of the ordinary fine silver foil which you obtain from any gold-beater. Then I put it into the tooth with the Herbst burnishers, and I must say I have not seen a failure around the edges, or much discoloration. Without the addition of silver to the copper amalgam I have seen more or less discoloration and wasting of the edges.

Dr. Rich: May I ask Dr. Bodecker the weight of the silver-foil he used?

Dr. Bodecker: I have no scales sufficiently delicate to weigh it. It is the fine silver leaf the gold-beaters make, which is used for silvering. It is not a quarter of a grain in weight. It dissolves instantly in the mercury.—*International.*

PENTAL.—With pental we have made a few experiments on animals, both by inhalation and injection into the veins. Though the number of these experiments is not great, they seem to us sufficient to show that pental as an anæsthetic acts quickly and fugaciously, but that it will probably be found more dangerous than the chloride of ethyl, and much more dangerous than chloroform.

An examination of the record of the experiment just given will show that each time the production of anæsthesia with pental was accompanied by a marked fall of the arterial pressure. Thus, in the first inhalation, the pressure had fallen from 154 to 100 mm., when anæsthesia was complete; whilst during the second anæsthesia the pressure fell from 160 to 90. In each anæsthetization the respiratory rate was increased, although the extent of the respiratory movements most of the time were not distinctly above the normal.

In no case have we caused death by the inhalation of pental, but the accompanying tracing records the pulse-wave and the respiratory movements under the influence of a lethal dose of pental (2 grammes) injected into the jugular vein.

The tracing just given accords with our experiments in demonstrating the great effect of pental upon the heart. It shows

that the heart was at once affected much more severely than the respiratory centers, that it failed to recover itself, and stopped beating before the arrest of respiration; indeed, full, deep inspiration occurred a half-minute after complete arrest of the circulation.

In conclusion, we are led by our experiments to believe that pental will probably prove to be a dangerous anæsthetic, and if extensively used will produce death by cardiac arrest. It is probable, also, that the after-effects of pental, in the human being, would be disagreeable; at least we repeatedly noticed in the dog a peculiar wild excitement immediately after the anæsthesia from pental had gone off.—DRS. H. C. WOOD and D. CERNA in *Cosmos*.

THE PROPER WAY TO DAM IT.—It is the experience of all dentists who have cases of decay extending above the gum margin, that in the effort to apply the dam they cannot get this to embrace the tooth above the border line of the decay, because the gum is tough and unyielding at other points and therefore when the ligature is applied, this lies across the cavity instead of lying above the margin of the decayed cavity. A ligature may be applied, but when pressure is brought on the ligature so as to bind it to the tooth, it will only tie in a straight line. Take a cavity where decay has extended to such a point as to be above the gum margin at one of its proximate surfaces, while at the other the tooth is intact. Now we have produced an absorption of the gum at the point where the tooth is decayed, by packing gutta-percha between the teeth. We can see and work easily at this point, and can prepare the cavity thoroughly. Our next effort will be to produce a similar absorption of the gum at a point where the tooth is *not* decayed. This is done by packing gutta-percha between the teeth, both on the buccal and palatal surfaces. In this way the gum is forced back well from the neck of the tooth, and lies so loose and flabby that the dam may be applied and the tooth so well, easily, and painlessly ligated, that the dam is readily faced up over the margin of the decayed cavity so as to afford the utmost comfort and security against blood and moisture that could be desired by the operator.

It will sometimes be found, however, that this packing of gutta-percha at both proximate surfaces of the tooth that is to be filled, is not sufficient, as the gum lying close on the buccal and palatal surfaces of the tooth is so tough that it prevents the dam being faced up on the neck of the tooth at these points. To get over this difficulty, it will be necessary after packing gutta-percha at both proximate surfaces, and producing thereby an absorption of the gums at these points, to ligate

by wrapping rather coarse gilling twine two or three times around the tooth, forcing the ligature well up under the gum *all around*, and reapplying the gutta-percha at the proximate surfaces.

When the case next presents, the dam may be applied so successfully to the neck of the tooth, on account of the flabby and loose condition of the gum all around the neck of the tooth, that nothing more can be desired for its thorough application, and the operation may proceed with the utmost comfort to the operator, and very little discomfort to the patient.—DR. CHUPEIN, *Off. & Lab.*

MAKING INSTRUMENT POINTS.—The tools required are a small steel hammer, large alcohol lamp, bench anvil, small hand vise, bench vise, flat and round nose pliers, medium size Arkansas stone for lathe, two felt wheels for lathe, steel rod, and screw plate. All the above can be purchased at any dental depot, except, perhaps, the screw plate and steel rods; these can be procured of John Wilkinson Manufacturing Company, Chicago.

In ordering the screw-plates, it is a good plan to send in one of your points, to get a plate with the same thread. The rods should be Stub's best steel drill rods, of the same gauge as your points.

Fasten one end of the rod in the hand vise firmly, that it may be easily handled while forging the point. In heating and forging the steel, it should be heated as hot as it will stand, and stop hammering before all color leaves, till finishing up the point, when it should be hammered till almost black; working steel in this manner leaves it tough, easy to anneal, and susceptible of a good temper. After the point is shaped, cut off from the rod with a saw, put it in the bench vise and cut the thread on shank. The point is now tempered, ground, and shaped on the Arkansas stone; the being run slow, and kept well wet; do not try to hurry the grinding. The point is now ready for the polish: for this purpose use crocus of two grades, medium and fine; mix the crocus with olive oil and apply to the felt wheel, hold the point to the wheel firmly, and run the lathe at a high speed, beginning with the medium grade and finishing with the fine.

I will not give directions for tempering, as nearly every dentist has a process of his own; and those who may not have had experience in tempering will find full information and formulas for tempering baths in my new book, "Useful Hints for the Dentists," published by the Wilmington Dental Manufacturing Company.

Forging Steel.—Many times a tool after being shaped, and made perfectly straight, will spring or warp out of shape in tempering. This is generally caused by improper hammering. During the process of drawing out and shaping a piece of steel, the hammer should be used equally on all sides, to retain the same density.

To Test Steel for Temper.—We often waste much valuable time shaping some tool or instrument only to find, when finished, that the steel used will not take a hard temper. It is much better to test the steel for temper before working, which may easily be done. Take a piece of the steel and draw it to a square tapering point, at a low heat, and plunge it into cold water; then with a pair of pliers break off the extreme point, and if the remaining sharp corners will make a scratch on glass, the steel is susceptible of a high temper.—DR. WILLIAM H. STEELE, *Items*.

EDITORS' SPECIALS.

COMPLY WITH THE LAW.

QUITE a number of Ohio dentists have failed to apply for a certificate entitling them to continue in practice. Those we have talked with give various reasons for obstructing the work of the Board—most of them babyish and unworthy of any but children. The law is very liberal to those eligible and now in practice, and to comply with the terms of the law once in a lifetime isn't a hardship. Ohio is now on an equal footing with States having similar laws, and we hope our brethren will by a ready compliance prevent any talk of repeal.

OBITUARY.—W. R. LILLY, D. D. S.

AND what of him? Well, we are reliably informed that he is dead. And how we shall miss him! One had to get right at him to find the good that was in him; then he found him all good. We could not think of W. R. Lilly doing an unmanly or selfish act. Our acquaintance dates back to '49, and it was intimate from the start. He was then called a cabinet maker, and the writer was a physician. In process of time we both became dentists. During the progress of our professional change we

ranked as preceptor and pupil. No one who knew him was surprised to find him a good pupil. It would have been difficult for him to have been otherwise. We have mahogany chairs that he made in the spring of 1849, and they are good and strong yet; and he made the first dental chair we ever owned. It was good too. All his mechanical work was first-class; and it was not strange that he afterward excelled as a dental manipulator.

But he did not excel as a manipulator only. He was well balanced in the science of our profession. He was a peculiar student. Each department of study seemed to be his favorite. This sometimes resulted in amusement to a room-mate. Each time he laid down one text-book to take up another, he was apt to exclaim, in mournful tones often, "Oh, I wish I were a good chemist!" to be followed at the next change of books by a remark equally earnest and mournful, "How I do want to become a minute anatomist!" and so on, over the entire course of study. His ardent desire to surpass in each, explains his success with all, hence, though exceedingly modest, he was a safe counsellor for the young. He graduated from the Ohio College of Dental Surgery and soon located in Circleville, Pickaway County, Ohio, where he established a good practice, and where he has remained most of the time since. He was a member of the Ohio State Dental Society and of the I. O. O. F. From the local papers we copy the following:

"Dr. W. R. Lilly, one of Circleville's most beloved and respected citizens, died at the family residence Tuesday afternoon, June 7, 1892, after a protracted illness.

Dr. Lilly was born in Pickaway County, June 28, 1824. He was left an orphan at a very early age, and by his own efforts and strict integrity, has made his life and profession a success; and his name is one esteemed by all. He was married in 1852 to Ellen Robbins, a devoted Christian woman, who, with three sons and two daughters, are left to mourn his loss; one son and daughter having preceded him to the better world.

The Doctor was a devoted church man, and his Christian character is known by all. Too much cannot be said of his patience and goodness. He was never known to utter a harsh or unjust word, and always had a smile for every one. Through all of his illness he never complained, and his last thoughts and words were a tender solicitude for the dear ones who are left."

NEW PUBLICATIONS.

A TREATISE ON DENTAL JURISPRUDENCE FOR DENTISTS AND LAWYERS
by W. F. Rehfuß, D.D.S. Philadelphia: Wilmington Dental
Mfg. Co., Publishers. Price, cloth, \$2.50; sheep, \$3.50.

There has been a great need of a work on Dental Jurisprudence and this, the first book of the kind published, ought to be well received by the profession. Dr. Rehfuß, in its compiling, has certainly proved himself to be more than a dentist; his writings show a natural taste for legal affairs, and the book as written has been approved by a prominent lawyer.

The work embraces the following subjects: Dental Jurisprudence—Dental Expert Testimony—Identification by Means of the Teeth—Dental Malpractices—Cocaine Poisoning—Fracture of Maxilla during Extraction of Teeth—Injuries and Deaths due to Anæsthesia—The Jurisprudence of Dental Patents—History of Dental Legislation—The Statutes Regulating the Practice of Dentistry in the United States and other countries, etc.

In the preface the author says. "The absence of such a work has been frequently commented upon and in consequence thereof I have devoted my energies toward supplying this need to the profession.

"Owing to the wonderful advancement within late years of the dental sciences, embracing the discovery of many new operations and methods of treatment, increased responsibilities are accredited to the dental surgeon, the neglect of which might involve him in litigation, and the knowledge thereof may at some period in his professional career avoid a calamity of a serious nature.

"For this reason a knowledge of dental jurisprudence would be of infinite value to the young graduate who too frequently enters upon his professional duties utterly ignorant and oblivious of the legal responsibilities incident to the practice of his profession. An error of judgment, recklessness, a careless mistake, or unprofessional conduct, may involve him in unwonted trouble that might ruin his whole professional career."

The cases cited in the work are taken from reports of actual suits and are so varied that they seem to cover all the possibilities liable to occur in practice.

The subject of patent rights as set forth includes such patents as have been granted for dental operations, methods and processes of operating. It is quite exhaustive, covering 60 pages and is a subject that is of special interest to the practitioner at the present time. Under Sec. 20, Specialists and Non-Specialists, the author says: "The law recog-

nizes a difference existing between the relative skill and knowledge of a specialist and non-specialist. . . . When a patient secures the services of a dentist for the performance of a special operation or act, and said dentist professes to be a specialist in such operations, the patient expects and demands more than ordinary care and services, because the presumption, both civil and legal, is that, though the non-specialist is responsible for ordinary care, the specialist or expert is liable for special care, because of his especial study and practice of the specialty which he follows (whether bridge- and crown-work, diseases of the mouth, administration of gas, etc.).

A defendant may be charged with the lack of special care, *i. e.*, such care as a professional man who practices that specialty is accustomed to give. His defense is, that he is not a specialist in this branch, and that he never claimed to be, and further avers that the plaintiff knew he was not a specialist. If this be true, unless it can be proven that the defendant exhibited in the case the ignorance of the ordinary knowledge of the subject, he cannot be held liable."

Under the head of "Authority and Legality of State Boards," the following quotation is taken from a paper published by Judge McGary, of Washington, entitled, "Are Medical Laws Constitutional?" "The State may doubtless create a Board of Health or a similar body, and require every physician to register his license with the board, or in the office of the county clerk or other appropriate place. But his rights to practise will not depend upon his registration, as the right has been already vested and assured by the diploma of the college. And should the State also vest the Board of Health with the right and even the duty of examining and licensing applicants, it could not apply to those who held a license from the incorporated colleges. Nor could it militate against or invalidate in any way the right of the colleges to issue valid diplomas and licenses before or after; for not even can the State, by its legislation, divest or impair a vested right which the colleges already had."

The appendix covering 252 pages and including statutes regulating the practice of dentistry in the United States,* Canada, England, Italy, France, Germany, Spain, Russia, etc., is valuable to every dentist. Altogether it is a work that no dentist should be without, and the Wilmington Company are to be congratulated upon its publication.

* It is regretted that the New Ohio Law is not given as amended in 1892. The old law of 1873 is given.—ED.

A MANUAL OF INSTRUCTION IN HAND SOLDERING by Harvey Rowell.
New York: E. & F. Spon & Co., Publishers. Cloth, price 75 cts.

To unite pieces of metal already having solidity and form, in a firm and substantial manner, making the whole as one solid piece, has always been one of the processes most useful to man and especially so to the dentist since the advent of crown- and bridge-work. Although not particularly hard to acquire, a thorough knowledge of it has been enjoyed by few in comparison with its every day usefulness and importance.

The author of the little manual before us has described each step of the process so well that one cannot help being enlightened by it, and while intended particularly for students and inexperienced persons, it certainly contains points of value to all. Those who have need of a work of this kind will find their investment a profitable one by securing this book.

WORKSHOP RECEIPTS FOR THE USE OF MANUFACTURERS, MECHANICS, AND SCIENTIFIC AMATEURS, Vol I, by Earnest Spon; Vol. III, by Warnford Lock. New York: E. & F. N. Spon, Publishers. Price, each, cloth \$2.00.

A general knowledge is useful to every one and something for study outside of the immediate literature of the profession is restful and beneficial to the dental practitioner. In the volumes before us there is much useful information of a scientific character. The books are not made up merely of receipts as the title would indicate, but of descriptions as well.

Vol. I treats of Alloys, Bronzes and Bronzing, Cements, Glass, Pottery and Porcelain, Varnishes, Japans and Polishes, Painting in Oils and Water Colors, Engraving and Etching, Electro-Metallurgy, Photography, Silvering, Gilding, Solders, etc.

Vol. III of special interest to the dentist treats of Alloys, components, general principles for making, how to melt metals, fluxes, fusibility of metals, order of melting ingredients of alloys, table of fusing points, crucibles for melting alloys, casting mixed metals, right moment for pouring, moulding articles in relief, composition for core for difficult jobs, solders, etc. Aluminum, properties, manufacture. Antimony, Barium, Bismuth, Cadmium, Calcium, Chromium, Cobalt. Copper. Electrics, batteries, constitution of a battery, making batteries, zinc plates, forming cylinders, amalgamating with mercury, attaching, negative elements, exciting fluids, separating the elements, containing cells construction, arrangement, etc. Enamels and Glazes. Glass. Gold, distribution, modes of occurrence, methods of extraction, amalgamation, refining, properties of gold. Iron and Steel, melting, tempering iron and steel, effects of hardening, causes of hardening, influence of carbon,

influence of temperature, classifying steels, testing steels and irons, hardening and tempering, fuel for heating, quenching, degrees of temper, etc. Lacquers and Lacquering. Lead. Lubricants. Magnesium, manganese, mercury. Nickel. Niobium, osmium, palladium, platinum, potassium. Silver. Sodium, strontium. Tin. Zinc, etc.

There are altogether five volumes of the work each containing from 500 to 600 pages. Price, each, \$2.00. Address Spon & Chamberlain, 12 Cortland St., New York.

SOCIETIES.

SOUTH DAKOTA DENTAL SOCIETY.

THE annual meeting of the South Dakota Dental Society will convene in Huron, S. D., Tuesday, Wednesday and Thursday, Sept. 27, 28 and 29, 1892.

F. O. SALE, *Sec'y*,
Huron, S. D.

INDIANA STATE DENTAL ASSOCIATION.

THE Indiana State Dental Association, at their last annual meeting elected the following officers: President, R. W. Van Valzah, Terre Haute; Vice-President, W. M. Hindman, Vincennes; Secretary, G. E. Hunt, Indianapolis; Treasurer, R. T. Oliver, Indianapolis. The Association will meet in Indianapolis on the last Tuesday in June, 1893.

G. E. HUNT, *Sec'y*.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

HAYDEN COFFIN a son of the late Dr. C. R. Coffin of London, is starring in opera in New York city.

DIED.—Harry N. Taft, Cincinnati, July 17, 1892, son of Dr. William and Rebecca Taft, aged 12 years and 10 months.

THE GRADUATE.—Don't speak lightly of the graduate; he knows a great deal that you have forgotten.—*Elnira Gazette*.

THE OHIO STATE BOARD OF DENTAL EXAMINERS organized by electing J. E. Silcott, of Washington C. H., President; Grant Molyneaux, Cincinnati, Secretary.

DR. T. S. SEELEY'S dental office at Norwalk, Ohio, was entered by burglars and robbed July 1, 1892. It was the second time the office had been burglarized within two months.

HER INHERITANCE.—She: What superb teeth she has! He: Yes, but they are false. She: Why do you think so? He: She told my sister she inherited them from her mother. — *Life*.

"FOR PROFESSIONAL SERVICES.—Daughter—Shall we invite Dr. Bigfee to the reception? Mother I think we'd better not, he's so absent-minded. He may charge it in the bill. — *N. Y. Weekly*.

THE OHIO STATE UNIVERSITY, Dental Department, Columbus, will probably be organized in time for the regular fall opening. Dr. A. F. Emminger, of Columbus, is at the head of the new school.

DR. GRANT MITCHELL, Canton, Ohio, member of the State Board of Examiners, gives special instruction in crown- and bridge-work and the tempering of instruments in the Cleveland Homeopathic Hospital Dental College.

PINE APPLE JUICE.—Recent experiments have shown that three ounces of this juice will dissolve ten to fifteen grains of dried albumen in four hours. These facts are likely to give to the pineapple a prominent place in dietetics.

UNPLEASANT AT LEAST.—A Cincinnati dentist was recently arrested for kissing a young woman while she was in his operating chair. In the Police Court she testified that he did and he that he didn't. It was his word against hers and he was dismissed.

THE COURSES OF HOME READING inaugurated by the Post-Graduate Dental Association mark a most important point in dental education. Read the announcement, on another page, and, if you are interested, write to the manager Dr. Louis Ottofy, Masonic Temple, Chicago.

DR. H. M. REID, of Minneapolis, Minn., formerly of Cedarville, Greene County, Ohio, and later of Cincinnati, "is a cousin of Whitelaw Reid, the Republican candidate for the vice-presidency. The Doctor is a little more than a year the elder. They were boys together. Their fathers owned adjoining farms, and they slept in the same trundle bed."

THE ANNUAL OUTPUT OF NEW MEDICAL DOCTORS.—From the *N. Y. Medical Record* we learn that about 5000 students will graduate from the medical colleges this year. There has been a gradual increase in the number of students from about 6000 in 1870-71 to over 13,000 in 1888-89. In 1891-92 there were probably between 15,000 and 16,000 students in the colleges. The increase is largely due to the establishment of new schools. The number of students in the older colleges keeps slightly increasing; but the elevation of standard drives many students to cheaper colleges with shorter courses.

DR. D. W. CLANCY starts in August with his family for Omena, Mich., where he has a wagon fitted up gipsy style. He will travel by this means all through that part of Michigan and will tempt the trout whenever a brook is

met. He will have a cute little two-year old tot with him for the first time. It already bids fair to become as fond of fishing as his father. The Doctor has been accustomed to spending his summers in this way. His wife is an expert photographer. His oldest son, also of the party, is likewise an expert in both photographing and fishing, even making his own plates and flies, and they will rough it for a month before returning.—*Cincinnati paper*.

AN IMPROVED CHLORA-PERCHA was presented, by the undersigned, at the late meeting, at Washington C. H., Ohio, of the 7th District Dental Society.

R Pure gutta-percha, - 1 part.
Gutta-percha stopping, 4 parts.

Squibb's chloroform, c. p., q. s. to make solution as desired.

The quantity of pure gutta-percha required to give the solution the necessary toughness depends upon the amount of foreign matter contained in the various stoppings used. The solution also makes an excellent cavity-lining under cements, amalgams and the new crystal-mat gold.—W. H. S.

THE MONEY VALUE OF A TOOTH.—Sam Small was given to-day a legal basis upon which to calculate the value of his anatomy. During the prohibition fight some months ago a saloon-keeper named Miner took occasion to chastise the Reverend Sam, and knocked out one of his teeth. Sam sued for \$5,000 damages. Miner made no defense, and to-day the jury awarded Small \$500 for that tooth.—*Atlanta, Ga., July 22*.

If the average dentist who extracts teeth that should be saved, could be made to pay at the rate quoted above, the profession would soon be purged of "store teeth" men. But the average dentist isn't rated in Bradstreet and has never seen \$500.

DR. JOHN ORMSBY DONOGH, the dentist, charged with cruelly maltreating his child, chastising it in a manner so cruel that the little one sustained a fracture of the arm, was acquitted in the Police Court June 8, 1892. He proved by physicians that the child suffered from rachitis or rickets, also that the child frequently sustained fractures by the slightest mishaps.

Dr. Donogh evidently had feared that the matter might terminate differently, for he called on the officers of the Humane Society, who had the matter in hand, and requested that they be as easy on him as possible. He offered to make a contribution to Mr. Love for the benefit of the S. P. C. A., but even this was not encouraged. If he had any desire to contribute he was told to wait until after the disposition of his case.—*Cin. Com. Gazette*.

"GEORGE F. GREEN died at Kalamazoo, Mich., in June, 1892, aged sixty years. He invented the first self-binder, first electric street car and pneumatic shutter for photographers. He was working on an electric device to take the place of trolley wires at the time of his death, and constant thought on the device probably accelerated his death."—*Daily paper*.

A fact, which seems to have been overlooked by the dental and secular journals, is that he was the inventor of the first dental engine or Green's Pneumatic Drill. We first saw one in 1868 or 1869 in the office of Prof. Taft, Cincinnati. The drill arm or shaft was rotated by a fan-wheel at the top of the standard, supplied with air from a foot bellows at the base. The drill was

very noisy and was soon superseded by the Morrison engine, when the latter appeared about a year later.—W. H. S.

“VITALIZED AIR” AGAIN.—Alice Shroder, of 221 1-2 Laurel street, was recommitted to Longview Asylum. She was one of the most popular young ladies in the neighborhood, when an accident on the croquet ground two years ago resulted in her receiving a blow on the head which caused temporary insanity. She was committed to Longview, and in time was discharged as cured. A few months since she visited a dentist, and without the knowledge of her parents inhaled vitalized air as an anæsthetic while a tooth was being drawn. The effect was most unfortunate. A change in her manner was noticed almost immediately, and she has grown worse ever since. All efforts to overcome the bad effects have proved fruitless. Change of scene produced no permanent improvement, and nothing her heart broken parents, Mr. and Mrs. John D. Shroder, have been able to do has proved of any avail. She shows a suicidal tendency, and is becoming vicious and threatening.—*Cin. Com. Gazette.*

BOARD OF DENTAL EXAMINERS of the State of Ohio, Certificate No. ——. To whom it may concern: This is to certify that — of — of — County, having complied with Secs. 4404 and 6991 of the Revised Statutes of Ohio as amended April 8th, 1892, entitled an Act to Regulate the Practice of Dentistry in the State of Ohio is hereby granted this Certificate of Qualification and Registration.



Signed and sealed at Columbus this — day of —, A.D., 189—.

JAMES SILCOTT, D.D.S., President.

GRANT MOLYNEAUX, D.D.S., Secretary.

LEVITT E. CUSTER, D.D.S.

GRANT MITCHELL, D.D.S.

CLARE L. SMITH, D.D.S.

The above is a copy of the text of the certificate issued under the amended dental law.

WESTERN RESERVE UNIVERSITY DENTAL DEPARTMENT, Cleveland, Ohio, is another new dental school, which will open September 14, 1892. It was organized by the trustees and the medical faculty of the University, believing “that the practice of dental surgery should be made a department of medicine, and they will endeavor to educate men to practice dental surgery as a *specialty of medicine*.” “The rules and regulations of the National Association of Dental Faculties will be strictly observed.” The dental faculty is made up as follows: Charles R. Butler, M.D., D.D.S., Dean, Professor of Operative and Clinical Dentistry. W. H. Whitslar, M.D., D.D.S., Secretary, Professor of Dental Anatomy and Pathology, and Superintendent of Operative Department. George H. Wilson, D.D.S., Professor of Prosthesis and Metallurgy, and Superintendent of Prosthetic Department. H. F. Harvey, D.D.S., Orthodontia. D. R. Jennings, M.D., D.D.S., Special Operative Dentistry. J. R. Owens, D.D.S., Anaesthetics. H. L. Ambler, M.D., D.D.S., Dental Hygiene. John W. Van Doorn, D.D.S., Materia Medica and Dental Therapeutics. Four of these, Drs. Whitslar, Wilson, Harvey and Jennings, are seceders from the

Dental Department of the Cleveland Homœopathic Hospital College—at least their names appeared on the list when it was organized last fall. We wish the new school, and its promoters, success.

TO WHOM IT MAY CONCERN.—The following extracts, from the recently enacted law, regulating the practice of Dentistry in the State of Ohio, will explain themselves:

SECTION 4404. From and after July 4, 1892, it shall be unlawful for any person to practice dentistry in this State, unless such person shall have first obtained a certificate of qualification issued by the state board of dental examiners of this state, as hereinafter provided:

Every person receiving such a certificate of registration and license as dentist shall, before engaging in the practice of dentistry in this state, place and retain in place while engaged in the practice of dentistry in this state, such certificate of registration and license in a conspicuous position at his place of business, in such a manner as to be easily seen and read.

Every applicant for license to practice dentistry under the provisions of this section shall, in person, by mail or otherwise, produce for the inspection of the board of dental examiners his diploma, or the affidavits of himself and two freeholders stating that he has been regularly engaged in the practice of dentistry in this state, and at what place or places, since July 4, 1889.

The Board of Dental Examiners, as provided for by the Act of the Legislature passed April 8th, 1892, have qualified, and are ready to receive applications. Copies of the blank form will be mailed, on application, to those who have not received them.

All persons holding diplomas will send the same to the Secretary of the Board for inspection.

Your immediate attention to a compliance with the law is requested, in order to facilitate the issue of certificates. The regular meetings of the Board are held at Columbus the last Tuesday in May and November.

By order of the Board, GRANT MOLYNEAUX, Secretary, S. E. Cor. Seventh and Elm, Cincinnati, O.

COURSES OF READING AND DENTAL DEGREES.—The Post-Graduate Dental Association of the United States has issued a circular explaining its scheme for home study. As will be seen below, it proposes to give two degrees: "Fellow of Dental Science and Doctor of Oristry." The United States is already noted as the land of many and cheap titles and such value as they may possess is steadily depreciating by the constantly increasing facilities for their acquirement. The several States enact laws giving Tom, Dick and the other fellow authority to confer degrees of various kinds without any uniformity of requirements, with the result that a title is no longer a distinction. Men of real ability will prefer the plain "Mr." as did the late Henry Ward Beecher. We may yet need an Interstate Commission for Examining Boards and Colleges.

"The Post Graduate Dental Association is an organization engaged in the work of educating dentists. By different courses of reading it aims to reach every class of dental practitioners. These courses of reading are divided into Pre-Graduate and Post-Graduate courses, the one designed for the non-graduate, the other for the graduate. The classes organized and to be organized are as follows:

Class A. Two years' course; composed of practicing dentists and stu

dents or those who desire strictly practical instruction, who have never attended a regular course of lectures, or a practitioners' course at a dental college, but who eventually expect to attend a dental college, and of those practitioners not mentioned in the succeeding courses. At the close of the term the successful candidate receives a certificate of proficiency.

Class B. Three years' course; composed of practitioners whose aim is not future attendance at a dental college, on account of age, permanence of location, lack of means or any other cause, but who are desirous of improving themselves and of giving the best service to their patients. This is a combined scientific and practical course. On its successful completion the candidate will receive a certificate of excellence.

Class C. Four years' course; composed of practitioners who are graduates of dental or medical colleges in regular or special courses, or who have attended a practitioners' course. This is a combined course comprising dental science and practice and the study of collateral sciences. On completion, and the successful passing of a thorough examination the successful candidate becomes a member of the Post-Graduate Dental Association and receives the degree of Fellow of Dental Science.

Class D. Five years' course; composed of regular graduates of dental and medical colleges of not less than five years standing and of non-graduates, who (1) have been in active continuous practice not less than ten years; and (2) have completed either course A, B or C; (3) can pass a satisfactory preliminary examination and furnish satisfactory evidence of original thought and research in the domain of dental science. At the end of the five years' course they become members of the Post-Graduate Dental Association and must pass a rigid examination, practical, oral and written, before Board of Examiners, upon whose unanimous recommendation the degree of Doctor of Oristry, will be conferred on the successful candidates.

This in brief, is the outline of the work of the Post-Graduate Dental Association. Any one entitled to follow the course of reading of any of the advanced classes may also at the same time be reading in any or all other classes. Class A is now instituted and all desiring to enter it should at once communicate with the Manager of the Association, Dr. Louis Ottofy, 1220 Masonic Temple, Chicago, Ill.

The complete expense of the two years' course is \$9.00. If circles are organized, the cost will be reduced, in a circle of two members to \$6.72 each, three members \$5.85 each, etc.

Any information in regard to dental reading whether you are a member of any class or not will be cheerfully furnished on application."

The educational council of the association consists of Frank Abbott, New York, N. Y.; W. W. Allport, Chicago, Ill.; W. C. Barrett, Buffalo, N. Y.; W. Geo. Beers, Montreal, Canada; B. H. Catching, Atlanta, Ga.; S. W. Dennis, San Francisco, Cal.; C. L. Goddard, San Francisco, Cal.; F. J. S. Gorgas, Baltimore, Md.; A. W. Harlan, Chicago, Ill.; S. J. Hill, Fargo, N. D.; C. Edmund Kells, Jr., New Orleans, La.; W. H. Morgan, Nashville, Tenn.; H. J. McKellops, St. Louis, Mo.; C. N. Peirce, Philadelphia, Pa.; L. D. Shepard, Boston, Mass.; J. C. Storey, Dallas, Texas; J. Taft, Cincinnati, O.; A. H. Thompson, Topeka, Kan.; James Truman, Philadelphia, Pa.; J. B. Willmott, Toronto, Canada.

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CONTRIBUTIONS.

SYNCOPE AND ASPHYXIA.*

BY G. H. WILSON, D.D.S., CLEVELAND, O.

THERE are three prominent causes of death or modes by which a human creature ceases to exist. While death may be said to be from any one of these three primary causes, it is usually complicated and combines any two or all three of the phenomena.

The causes are associated with the three chief vital organs of the body: the heart, lungs, and brain. Death beginning at the heart is said to be by syncope; at the lungs, asphyxia; at the brain, coma.

We may have any one or all of these conditions without death, but when we consider that death must come by one or more of these expressions of dissolution, we are the better able to comprehend their significance.

The phenomenon known as syncope we will define as failure

* Read before the Northern Ohio Dental Society, Cleveland, May, 1892.

in the action of the heart, which is speedily followed by symptoms resulting from anæmia of the nerve centres, and these by failing pulmonary functions.

The chief predisposing causes of syncope are, the female sex, a nervous temperament, weakness, an impoverished condition of the blood, and organic structural deficiencies.

The exciting causes are numerous, the more important one, want of sufficient blood in the cavities of the heart, as from excessive hemorrhage or sudden removal of pressure from any of the great blood vessels.

Another cause is an inadequate supply of blood to the cardiac walls, as from obstruction of the coronary arteries; or a supply of impure blood, as in low fevers, or a hot and crowded room.

Another cause is partial or complete paralysis of the muscular tissue of the heart, either from organic changes or from nervous disturbance, which may be either centric, reflex or intrinsic.

The last we will name is continued spasmodic contraction of the heart.

Syncope may come on quite suddenly or cause instant death, but usually there are premonitory symptoms before actual insensibility occurs.

The premonitory symptoms are giddiness, trembling, with sinking in the epigastrium; nausea, and sometimes vomiting; pallor, with drawn features; chilliness and shivering with clammy perspiration; a very rapid and weak pulse, though the large arteries may throb; marked disturbances of the senses of sight and hearing.

Asphyxia we define as suffocation or lack of oxygenation of the blood from whatever cause. To us as dentists this condition is far more circumscribed than syncope. The causes are closure of the glottis, larynx or trachea, either from a foreign body or spasmodic action.

Another cause is a lack of free oxygen, whether by forcible means or substituting a gas destitute of or incapable of supplying the necessary element to the lung tissue.

Still another cause is through the nervous system, whether centric, reflex or intrinsic. Last, insufficient blood supply.

We will recognize this phenomenon by the two clinical

symptoms, impeded or suspended respiration, and the color of the surface of the body, which will range from a slight turgidity of the mucous membranes to a decided blue-black of the skin.

Coma is characterized by stupor or insensibility, which is soon followed by disturbances of respiration and circulation. In practice we are liable to have all of these conditions presented. Syncope is most common and ordinarily the least dangerous. The danger to the patient and our responsibility will depend upon the conditions under which the patient fainted. If the dentist has not administered a drug or anæsthetic, he will not be held responsible should death supervene; but under such conditions there is little danger of a fatal result, though it is possible.

When the exciting cause is mental, of whatever nature, or from exhaustion, the treatment will be to do what nature always attempts to do, that is, to cause the patient to assume a recumbent position; give free use to the muscles of respiration, apply cold water to the face and chest, volatile stimulants to the nostrils, and stimulants by the mouth if the patient is able to receive them. The diffusible ammoniacal preparations are to be preferred. In the domain of anæsthesia we will have these three conditions mostly to contend with, here they are especially associated with danger and demand our intelligent attention.

Dr. Lyman makes this statement in his work on anæsthesia: "A dentist's first choice should be nitrous oxide, second and last sulphuric ether, never chloroform." As there are very few who give ether to-day without the presence of a physician, we will place this last article with chloroform so far as this paper is concerned and confine ourselves to the one remaining general anæsthetic, nitrous oxide gas.

Clinical experience has now demonstrated that the gas is not only the safest, but in the hands of an ordinarily intelligent and careful dentist, is practically safe. While there are records of a number of deaths associated with nitrous oxide gas, Prof. Guilford says he has yet to learn of a single fatal case from the liquid gas. That there is danger in its use is evident from the large number of men who have abandoned it, because of the unfavorable symptoms they have observed. And no one with much experience in its administration, will have escaped these unfavorable cases.

I believe we are justified in saying that syncope is not the

effect of nitrous oxide, but it is generally accepted that it is incidentally present and is dangerous in proportion as the patient is more or less filled with the gas thus preventing its elimination.

Asphyxia is the one condition we have to guard against in the administration of gas. It is quite generally conceded that gas is a true anæsthetic and produces its effects by direct action upon the nerve centres. That super-oxidation does not take place at all and that asphyxia is only incidental; but where there is a good respiratory organization and the nervous system is not unfavorably acted upon by outside influences, there will be sufficient oxygen retained in the system to supply the wants of nature, and nature will tolerate the presence of the inert gas.

Should the face indicate the presence of an undue amount of carbonic acid from whatever cause, it can generally be quickly corrected by removing the face piece and admitting one, two or more breaths of pure air when the undiluted gas can be admitted again with probably no further trouble.

Should respiration cease entirely and the patient becomes rapidly black in the face there is certainly no time to be lost. Throw the patient directly forward bringing the thorax upon the knees, this will compress both the abdomen and thorax and largely expel the contents of the lungs.

With a napkin, pliers or tenaculum, draw the tongue well forward; with the finger ascertain that the fauces are well opened, then place the body in a recumbent position, observing that the head is so placed as to make the air passages as straight as possible, when if respirations have not begun give diligent attention to artificial respiration. During this condition all volatiles, water, or rubbing the extremities are useless as the nerve terminals are thoroughly anæsthetized and not capable of responding to such stimulants. What the system *needs and must have*, is *oxygen*.

We are to-day in the midst of a craze for local anæsthesia, the active ingredient of which is cocaine. In this I believe we have a new danger to contend with. While I have not as yet seen anything written scientifically upon its effects on the system, we know it has a decided toxic action, and this I believe is directly upon the nerve centres which we know as coma. Circulation and respiration only being affected because of the sedative action upon the brain. The treatment consists of active stimu-

lation, thus assisting nature to diffuse the poison throughout the whole system thereby reducing its potency to such an extent that nature can successfully eliminate the drug. •

Trusting that these few thoughts will evoke a discussion and that we shall have the results of your valuable experience and observations, I close.

SOME OF THE RESULTS OF THE EARLY EXTRACTION OF THE SIXTH YEAR MOLAR.*

BY W. B. CONNER, D.D.S., AKRON, O.

IN the presentation of this paper it will be my aim and purpose to show some of the changes that take place following the extraction of the sixth year molar during the developmental age of the maxilla and teeth.

I have no doubt there are some here who regard this subject threadbare; it may be, however, but only in spots, for there are interesting facts to every question if only pointed out.

During the development of the bones of the face and maxilla we are many times called upon to perform the disagreeable task of removing this enfeebled member and our consciences often rebel at thought, knowing what results will follow. Nevertheless, with all our entreaties and kind solicitations we are often obliged to extract the same, charging impatience and obstinence to the patient or parent. Again, where we have the confidence and willingness on the part of the patient and retention is possible—some dentists are so wavering or vacillating as to what theory is best to pursue, they will reluctantly set aside their own judgment and be carried away by this or that author's vaunted or radical idea and in the course of time bewail their folly.

The maxillary bones are unlike other bones in the body in many respects, but are subject to the same laws of nature governing repair.

An excision or fracture of a shaft bone will not unite without producing a shortening. The same rule applies to all bones and flesh wounds. Also that destruction is always greatest in the direction of the least resistance.

It is popularly supposed that after this tooth has been

* Read before the Northern Ohio Dental Association, Cleveland, May, 1892.

extracted that the second molar moves forward and occupies its place. This is not altogether true and here is where a mistaken theory has been misleading. In every case of early extraction of the first permanent molar the change that takes place in the jaws is contrary to the popular theory advocated.

There is no force brought to bear upon a second molar that would cause it to move forward. The second molar is held in its normal position by its antagonist and does not move forward; instead, the change is wholly anterior to the same and comprises a retrograde movement of the jaw.

The roots of the sixth year molar penetrate the true maxilla to about one-half their entire length; where extraction is resorted to, the lesion involves not only the process but far into the jaw proper.

We have exactly the same condition as we would find in a shaft bone where fracture has taken place, only in a less degree.

What would be the result if a fracture of a shaft bone were not supported by splints during the knitting together of the parts? Would not muscular contraction distort that joint and produce an unsightly and impaired member? If the rule applies to one should it not also to the other?

The part of the jaw implicated in extraction is consequently weakened, and at an early age when the bones are yielding is much more acceptable to the pressure of muscles than at a more mature age.

The strongest and most unyielding part of the jaws, both upper and lower are posterior to the second bicuspid, but owing to the extent of bone involved in the extraction of this molar it is made the weakest, and the muscular pressure brought to bear upon the anterior portion of the jaw, forces the superior jaw backward and upward, and the lower jaw backward and downward.

The bicuspid, canines and incisors have not separated in their movement backward, but you will observe that after the bicuspid lost their antagonism they were forced inward by muscular contraction.

I do not wish to convey the idea that such changes take place after the fifteenth year; but have made these observations where extraction has occurred prior to that time.

If the first molar is extracted before the second molar has

erupted, we find the space closing up sooner and to all appearances there has not been any retrograde movement on the part of the anterior teeth. But upon examination of the bite and jaws, we find a change and a change not entirely at the expense of the jaw posterior to the lesion.

It has been taught in our colleges and journals that we must expect the second molar to occupy the space left vacant, and our natural conclusion has been in harmony with these teachings.

It is contrary to all scientific reasoning to expect such a result where extraction takes place at an age when the jaws are so yielding to the forces brought to bear upon them.

How often do we find a first molar moving forward to occupy the space left vacant after extracting the second bicuspid?

I have never observed one such instance. Is it not just as lame an argument to advance as that of a second molar moving forward to occupy the first molars space?

The models I have passed around are casts of my own mouth showing the arrangement of the teeth and changes taken place. You will readily see the absence of the first molars in both upper and lower jaws. The upper were extracted at about the tenth or eleventh year and the lower were left in the jaw until exfoliated which was completed at the fifteenth or sixteenth year. So the upper were lost before and the lower several years after the eruption of the second molars bringing about the change presented.

We have in this case a decided shortening of the bite which is shown by the position of the occluding teeth, instead of an interlocking of the canines and bicuspid which was the normal occlusion prior to the extraction, the superior canines and incisors are striking directly upon the incisive surfaces of the eight anterior lower teeth, proving conclusively a determined shortening of the bite. There is also a loss of the use of six bicuspid, the four superior and two inferior.

I might say here that in all cases the lower jaw is not interfered with to near the extent of the upper after extraction, owing no doubt to the fact that the inferior maxillary bone is ossified earlier in life and is of a stronger mould and texture offering more resistance.

I maintain that the superior maxillary in this case has been shortened to the extent of the width of the missing tooth ex-

tracted not saying anything about the constriction in the width of the jaw.

The second inferior molar having erupted earlier than the superior, which is true in the majority of cases, gives it more prestage having a firmer union with the jaw controlling the movement of its antagonist.

The result you observe holding the superior second molar in nearly its normal position, thereby prohibiting an interior movement, but not a rotary movement.

The forces brought to bear at this early age upon the superior teeth anterior to the first molar might be regarded as insignificant.

We observe in our every day practice that the protrusions of the superior or inferior canines if let alone, will in the course of a short time be adjusted to the arch and antagonistic teeth. The only force brought to bear is the weight of and contractions of the orbicularis oris muscle with the assistance of the muscles of expression and mastication.

If the bones and process is so yielding at the time of the eruption of the canines why should not the jaw be more so during the eruption of the second molars two years previous?

There is no doubt that if such changes as above mentioned come about at the age of twelve that the jaws have not become fully developed and adhering to the law governing repair, the destruction is always the greatest in the direction of the least resistance. We have a retrograde movement in every case of early extraction of the sixth year molar. In the superior maxillary the molar eminence adds its marked features to the face, its consequent absorption, its dire effect upon the stronger expression. In every case of early extraction there is an entire loss of this protuberance and the muscles and surfaces over it become shortened and flattened with constriction of the face in its vicinity. There is a depression at the alæ-nasi and a sunken condition of the bones which occasionally extend to the floor of the orbit. In the face of all the abnormalities produced we have our journals full of this or that theory relative to the time when this tooth should be extracted. One writer claims the eighth year, another the tenth, and another the eleventh or twelfth, and all for what purpose? to bring about a better arrangement and condition of the teeth and for the benefit of humanity in general.

I am safe in making the assertion that nature has not produced as many irregularities as the early extraction of the sixth year molar has occasioned. Does extracting this tooth at an early age preclude all possibility of an over-crowded condition? Can we foretell the size, development and exact arrangement of the teeth and jaws far into the future? If such prophetic knowledge is possessed by a few, the whole profession should know it. Nature's plan of eruption is a most harmonious one. When the first molar is erupted it acts as an anchor or foundation to the arch, always in the proper place competently adapted for the purpose intended, and in the course of time the second molar erupts, reinforcing as it were, in accordance with the eternal fitness of things.

Now are we as a scientific profession going to improve upon nature's plan by removing the foundation and dictate our plan of constructing a human jaw? We should have not only one object in view when extracting, giving room for incoming teeth and temporary relief. The best safeguard a dentist can have is to preserve if possible all of the sixth year molars until that condition has come about when the bones of the face have become perfectly developed and features set, the second molars, bicuspsids and canines held in position by firm occlusion. Then and not until then do I consider it prudent for the first permanent molar to be removed. Everything is conjecture and visionary when we extract this tooth at an early age with such delusions as some authors advocate, to lead us. Our observation if closely applied will not direct or advise such a procedure. The intelligence of the age demands of us all that our knowledge can avail, and it does not show that we are advancing when we resort to such practice as we have been taught to follow in the past.

TUMORS OF THE MOUTH.

At a recent meeting of the Cleveland Dental Society a paper on Tumors was read by Dr. Meyer. The discussion was as follows:

DR. J. R. BELL: There are reasons why the dental practitioner has so few cases of tumors of the mouth to treat.

1st. Because of the prevailing opinion that he is skillful only in operating upon the teeth, and the mind of the laity will

thus remain, so long as this character of cases is not catered for by men desiring them.

2nd. The colleges with which I am familiar do not teach, nor have enough clinical cases of tumors, to acquaint the student with their diagnosis or treatment; therefore, in my opinion, very few dentists are as familiar with this form of diseased tissue, and the diagnosis and treatment, as they should be, as has been truly said by the essayest, and his idea of choosing this subject for self information, and to excite expression and experience from others is commendable.

In my twenty years in dentistry, which have been spent in Cleveland and Cincinnati, there has not been a case of malignant tumor presented which was not previously seen by a physician, or surgeon, who was either going to operate surgically or systematically, or who accompanied the case for consultation, or for the purpose of having teeth extracted, but never called upon me to take entire charge, hence, from experience with this character of disease I can say but little.

My ambition to diagnose and treat, what I first pronounced a malignant tumor, was excited in 1884. Having had a young man in course of repair for ordinary dental operations, for several consecutive weeks, who described a growth below and just a few lines anterior of the ramus of the jaw, as having been of several weeks growth. As the disposition of the case was left entirely with me, proceeded to familiarize myself upon this subject and the diagnosis of tumors in general preparatory to act. My first step was to ascertain the cause if possible: teeth were *in situ* and healthy, except third molar, its absence first inclined my belief in a dentigerous cyst. But its growth having been so rapid and considering it was no larger than a walnut, and failing to discover the peculiar characteristic of the parchment-like crackle under pressure, caused a doubt which was verified after further research, and which later I found to be a slow growing solid tumor. Even then I was tempted to make a simple exploratory puncture. I decided, however, upon an effort to remove the growth by absorption, in which I succeeded in a few weeks. My treatment was 2 gr. taraxacum, or dandelion, three times a day, before eating; this, I prescribed for its tonic, diuretic and aperient effect, and its specific action upon the liver, exciting it when languid. I directed the use of com. iodine oint. to be

thoroughly rubbed upon the entire surface of the tumor at night.

Pardon my divergence from direct adherence to and discussion of the paper, but as it invited rehearsal of the experience of members, ventured to relate the only case I ever handled alone of any importance. There is a wide scope for study in this subject, and to be familiar with the various phases, causes and treatment of it, calls for constant hard work and advantages to be found only in the infirmaries or hospitals in large cities.

DR. W. H. WHITSLAR: We have listened to a pleasing essay. There is not a superabundance of technical terms and consequently we can all understand it. There is one class of tumors of the mouth that was not spoken of in the essay. Tumors of the peridental membrane are uncommon, and yet, they are present oftentimes when not known to be. On account of their location in an alveolar socket extension of growth is sometimes limited and always slow of growth. Their exact location is mostly between roots of molars and bicusps. We may discover them in the inferior sooner than those in the superior, because if present in the superior jaw the growth may extend into the antrum of Highmore producing a growth quite large even before discovery; whereas, in the inferior jaw the growth would soon be made known by its size. Hence in all cases of tumors of the peridental membrane time is required before we can give a correct diagnosis. Causes for such tumors might be said to be *direct*, as traumatism; and *indirect*, as death of a tooth pulp.

As to the histological composition of such tumors we find the same conditions as in other tumors, excepting that the tumors of this class are not loose in their texture. Of course we must exclude in tumors of this kind the carcinomatous type, because, I believe, pathologists tell us that carcinoma are of epithelial origin and the peridental membrane being a derivative of the mesoblastic layer in the embryonic state, naturally we would not have epithelial tumors arising from a fibrous membrane. There are cases where, from contiguity, the epithelium might be pushed down into the alveolus and apparently the carcinomatous type would be represented. In the same way polypoid tumors would seemingly arise from the peridental membrane.

It was Magitot, I believe, who in 1860 gave as divisions of kinds of tumors of the mouth the following: 1. Fibrous; 2.

Fibro-plastic; 3. Epithelial; 4. Tumors with myeloplaxes; 5. Tumors with cytoblastious. Magitot and Wedl both noticed in the normal peridental membrane myeloplaxes and cytoblastious which would seem to indicate that the primary elements of such tumors may exist for a long time ere activity begins, hence no one can tell what may result. Now I dare say there may be tumors of the peridental membrane which we would call from their anatomical make-up, as neuroma, angioma, lymphoma, lymphangioma, etc.

As the term malignancy it strikes me that there are conditions which we would recognize first ere we call a tumor malignant, and those conditions are, 1st, Infiltration of adjacent tissue; 2nd, Affection of lymphatic glands; 3rd, Affections of other organs.

The subject of tumors of the mouth is withal an interesting subject and one that no dentist should be unfamiliar with, as each and every one is apt to be confronted with cases in his practice.

DR. G. H. WILSON: This subject has been well presented and already ably discussed, so I will not attempt a discussion, but I desire to present two cases in practice. The interest not being in the tumors themselves but rather in the treatment.

Case No. 1. Fibroid, large broad base, located over the left central and lateral incisors. Treatment, transfixing the tumor at its base, at three or four different points using galvanic current, regulating the current with a rheostat so that while the sensation was quite perceptible it was easily borne. A second application was made one week after the first, and now, two years later, no evidence of the former enlargement.

Case No. 2. Fibroid, located between left central and lateral incisors, palatine aspect. Tumor the size of a pea with a well defined pedical. Treatment, snipped the pedical close to the gum tissue, cauterized the surface and discharged the patient. In three month's time she returned with a perfect reproduction of the removed tumor. Then I cut away the tumor as before and penetrate the tissues where it was attached, several times, with the electric needle. Eighteen months later no evidence of the former growth.

DR. AMBLER: Dentists seldom get hold of a case in the city except those arising from dead pulps. Those we know how to

treat. I think the small ordinary growths can be cured by removing the tumor itself and a small portion of the periosteum. I have seen but two or three cases in years which have been of interest. One covered two or three teeth. A portion of the bone was removed and a cure followed. You will find syphilitic tumors in the form of nodules generally located in the "inferior maxilla." Treat systemically and a cure generally follows. Tumors of the antrum are generally caused by a closure of the opening to the antrum.

DR. TENNEY: To cure the ordinary tumor I cut it out and cauterize thoroughly with strong iodine.

DR. W. H. WHITSLAR: I had an elderly gentleman come to me with what I supposed to be disease of the antrum. It came on with a sudden sharp pain below the eye. I extracted a tooth and tried to get through the bone with a bur but could not on account of pain. The patient fell into the hands of a surgeon who made an incision on the palatal surface which would not heal but began to swell from side to side. He finally went to N. J. where Dr. Agnew operated upon him removing a portion of the jaw bone. The trouble returned in six months and the patient died. I think that drilling into the bone aggravated the disease.

DR. DEWEY: I think that in many cases the patient would be better off if the dentist was consulted first. I had a case supposed to be a tumor but which proved to be a mass of tartar. I removed inferior centrals and laterals and one canine and found the floor of the mouth sloughing. A cure followed the removal of the teeth.

DR. BARNES: I had a case which adds force to Dr. Dewey's argument that if the dentist was consulted first (in many cases) a great deal of trouble would be avoided. Mrs. —, aged 21 years, had been troubled with what eminent specialists in surgery diagnosed as cancer, but which proved to be nothing but a fistula running from an abscessed inferior central incisor, and opening at the right of the symphysis and directly under the chin. The diagnosis in this case was plain as the tooth had been broken off and was discolored. Disinfecting the root and filling it by the Jennings's method removed the trouble and cured the case. Preparation had been made at the hospital for the removal of a portion of the patient's maxilla.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

[Reported for the OHIO JOURNAL by L. E. Custer, D.D.S., Dayton, O.]

THE society met at Basel, Aug. 1, 2, 3, 1892. After the final opening and address by the President (Dr. L. C. Bryan), Dr. Charles W. Jenkins of Zürich, read a paper—"A Vision of Dead Teeth." He said each tooth arose and protested against many of the forms of practice to which it had been subjected. One tooth had been rotated, one had been pushed in or out, another for years had its belly full of stinking cotton, one had been filled and refilled. The roots had been treated with any variety of poisons and half filled with an absorbent. In the discussion by Drs. de Trey, Elliott and Mitchell, it was developed that charcoal was one of the best temporary root-fillings, and often, in combination with creosote, made a good permanent filling.

Dr. L. C. Bryan of Basel, read a paper—"Surgical Treatment of Certain Dental Irregularities." It referred to a limited class of cases, such as cuspids and incisors erupting inside the arch. The method of treatment suggested was to lift, with a bayonet elevator, the external alveolar plate. Care is to be taken that the strong part at the septum be fully lifted. This being completed the tooth is grasped by a specially constructed forceps with one beak $\frac{3}{4}$ -inch longer than the other. With the longer one resting upon a fulcrum bearing upon the adjoining teeth and alveoli, by careful pressure the tooth is brought into position by the other beak.

Dr. A. V. Elliott, of Florence, read a paper—"Patients and Patience." The dental chair is the test of the character of many individuals. The patience of the operator is often tried by late comers, which is remedied by charging for the lost time. There are the self-willed and antagonistic, the arguing patients and the offensive aristocrat. There is the patient who thinks her new plate should "fit" like her mother's. Those who sit bolt upright in the chair, who can't swallow, who must rest, who forbid the engine, try our patience. There are the timid and little ones who require much tact in managing. To do good work we need the co-operation of the patient.

In the discussion that followed, Dr. de Trey said we must be firm, while Dr. Witzel said we must often do as the patient

wishes if it is possible, Dr. Jenkins said nervous patients must be treated according to their imaginations.

Dr. Prof. Schiess, of Basel, read a paper—"Some Hints on Vision." After giving a review of the principles of vision he said, it is very important to the dentist that he have his eyes examined by a competent oculist from time to time. Glasses should not be adjusted by the optician but only upon the prescription of the oculist. It is very injurious to look obliquely at an object as the dentist often does. Long-sighted persons should wear glasses earlier in life than short-sighted ones.

Dr. H. L. Schaffner, of Florence, read a paper—"Original Methods in Bridge-work." As little solder as possible should be used. Long connecting bars should be carefully soldered. Use soft metal in contact with the tooth to prevent checking. Use Ash's or plain rubber teeth and extend the gold backing over the neck instead of the cutting edge. This relieves the pins of all strain.

Dr. L. J. Mitchell, of London, in his paper on "Cleansing Teeth" said this is an elementary operation and should be well done. Begin with the back teeth and go forward. Phenate of soda is a good wash at the time of cleansing. Cocaine may be used to alleviate the pain. Finish with pumice and peroxide of hydrogen.

The clinics were as follows: By Dr. L. C. Bryan, Basel, original pneumatic mallet for the dental engine; operation for regulating teeth; original instruments. By Dr. A. V. Elliott, Florence, copper-lined gold bands for root-crowning; copper-lined clasps for partial dentures.

Dr. L. J. Mitchell, London, mounting Bonwill crown; contouring on incisors with crystal gold and finishing with platinized gold.

Dr. H. L. Schaffner, Florence, new water-motor dental engine in operation.

Dr. E. de Trey, Basel, filling with mat gold.

Dr. Chas. T. Terry, Milan, filling of Watt's crystal gold in combination with other forms of gold.

Dr. Adolf Witzel, Paris, filling with cohesive and non-cohesive gold.

Dr. Alfred Guysi, Zürich, lantern projections of micro-photographs of tooth sections.

Dr. Wm. Dall, Glasgow, porcelain inlays, tools and methods; method of inserting lower sets steadied by pins extending into sockets of extracted teeth.

The officers for the ensuing year are President, Dr. L. C. Bryan, Basel; Vice-President, Dr. J. H. Spaulding, Paris; Treasurer, Dr. Monk, London; Secretary, Dr. C. W. Jenkins, Zürich.

Next meeting first Monday in August, 1894, at Geneva.

The meeting and clinics were good and well attended in proportion to membership.

EIGHTEENTH ANNUAL SESSION OF THE MISSISSIPPI STATE DENTAL ASSOCIATION, COLUMBUS, MAY 3, 4, AND 5, 1892.

THE Mississippi State Dental Association convened its eighteenth annual session, in Concordia Hall, Columbus, Tuesday, May 3, 1892.

The association was called to order by Dr. W. W. Westmoreland, Chairman of the Executive Committee, and opened with prayer by the Rev. J. L. Johnson, Pastor of the Baptist Church.

Officers present:

Dr. D. B. McHenry, Grenada, President.

Dr. A. A. Dillehay, Meridian, First Vice-President.

Dr. N. N. Wofford, Columbus, Third Vice-President.

Dr. W. E. Walker, Bay St. Louis, Recording Secretary.

Dr. P. H. Wright, Senatobia, Corresponding Secretary.

Drs. W. W. Westmoreland and N. N. Wofford, Columbus, and Dr. P. H. Wright, Senatobia, Executive Committee.

Dr. Westmoreland introduced Col. S. M. Meek, of Columbus, who delivered an eloquent address of welcome. Rarely has such a noble tribute to the rapid advancement, and the scientific standing of the dental profession been paid. After alluding briefly to his surprise that he, a lawyer, should have been selected to welcome the Dental Association, he said as he ever felt a lively interest in whatever adds to the culture, advancement and elevation of any one of the learned professions, it was therefore with sincere pleasure and unalloyed gratification that he undertook the task of extending to one and all, individually and collectively, a warm and hearty welcome to the hearts, homes and firesides of the residents of Columbus.

After a glowing and well-merited tribute to the claims of Columbus to her honored name, a city which, in the words of a noted scholar, "looks like a little city that had gone on a pic-nic, and camped for a time, amid forest trees and flowers"; with her broad and well-shaded streets, handsome residences and beautiful flower-gardens, houses of worship of all denominations, noble educational institutions, and great manufacturing establishments; her active and energetic population, the men cultured and refined, her women gentle, fascinating and beautiful, he spoke of the great benefits of associated effort in any occupation, calling or profession, as being the great hour and hand guide for the accomplishment of good.

The dental profession, based upon the loftiest principles of art and science forming no exception, but forcing its way to solid strength and permanent prosperity, through the combined power of associated effort.

Reviewing the past history of dentistry, Col. Meek said that he had been astonished in the reading and investigation he had given the matter, in attempting to prepare himself for this occasion, to see the lofty pinnacle to which it has risen; until to-day, its members are almost countless, its magazines, periodicals, journals, and other publications being weekly, if not daily, issued by the press; dental schools and colleges are springing up in nearly all the States of the Union; laws have been found for the direction regulation and control of those desiring to enter its ranks, and the prospects before it are gratifying and encouraging. Thus, he said, safeguards are abundantly thrown around the profession, and the public cannot be imposed upon by incompetent men if the Board of Examiners perform their duty faithfully and well. Blacksmiths, silversmiths, and jewelers must stick to their callings, and not tamper and tinker with that of which they know nothing. Quacks, pretenders and charlatans must and will stand aside if this Board, appointed by the Governor—men eminent for their learning and ability—meet the demands of a confiding public.

To this eloquent address of welcome, Dr. R. K. Luckie, of Holly Springs, the retiring President of the Association responded, in language equally fluent and eloquent. He spoke of the rejoicings which filled the hearts of all when Columbus was selected as the next place of meeting. He said that all Mississippians

were naturally proud of Mississippi, with her vast, undeveloped domain, inviting the agriculturist with promise unequalled, a climate almost matchless, a soil as fertile as the valley of the Nile, with millions of acres of virgin forests—with schools, colleges, churches and missions, all in a prosperous condition. He paid a well-merited tribute to Columbus—as a city of fragrant flowers, of taste and refinement, of beautiful homes, of great men and noble christian women—a city of historic associations and traditions, worthy to stand in perpetual memory of the most adventurous navigator that ever braved the ocean's waves, a heroic man, a man of scientific, philosophic, religious faith, of indomitable perseverance under intimidating difficulties; a man who dared to stand before kings and advocate a project decided as visionary. He lamented the too-well-known lack of enterprise in the South, which for so many years has left the manufacture of the great staple—cotton—in the hands of the Old and New England, whereby millions have been lost annually; and expressed his gratification that Columbus had taken the initiative in starting this great industry. The cotton mills of Columbus having proved a great financial success, having won an enviable reputation for high-grade products. He spoke in eloquent terms of the "Industrial Institute and College" of Columbus, a State institution for girls; he said that, though Mississippi had no gold, no silver, no copper, no rubies, sapphires nor diamonds, yet no country in the world had jewels of more priceless value than the pure and lovely girls of that institution; jewels being polished by the State, and fitted to beautify christian homes and brighten human hopes. He then spoke of the Mississippi State Dental Association, and portrayed its growth and progress from the date of its birth, April 21, 1875, through eighteen years of varying fortunes, standing well the test of time. Through its influence, wholesome dental laws have been enacted, dental education has been encouraged. Through associated effort, its members have been stimulated to the highest efforts in scientific investigations and in the introduction of new methods of work in all departments—the progressive dentist of to-day being prouder of his calling than he has ever been. Advances are being made all along the line; scientific investigations are more thorough; new discoveries are being made; new instruments, materials and appliances are being introduced; the standard of dental educa-

tion has been elevated, and there is constant desire for higher, nobler and better things. Good things have come; better things are yet to come; better, not only for the profession, but for the public at large. We can truthfully say no one can foretell the future of our loved and honored profession.

Dr. Westmoreland next introduced Dr. D. B. McHenry, of Grenada, the President of the Association, who proceeded to deliver the

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This, though brief, dealt with many points of practical importance to the association as a body, and to the individual members. He urged the adoption of some plan whereby members come prepared to intelligently discuss the papers presented; the more active work of the members appointed in each judicial district; to see to the enforcement of the dental law of the State; the discussion of, and the means of securing changes in the dental law somewhat surreptitiously passed by the last legislature, and which, as it now stands, antagonizes both the Association and the Board of Examiners, and the appointment of a committee to look after the interests of the dental profession of the State of Mississippi, at the Columbian Dental Congress and in co-operation with the local members of the Special Committees.

After a short recess for roll call and payment of dues, on motion of Dr. Westmoreland, the Lowndes County Medical Association, in session in Columbus, were invited to seats in the Dental Association with the privilege of discussion.

During the sessions, Drs. Brownrigg, Vaughn and James availed themselves of the invitation, adding greatly to the interest of the discussions.

Prof. Francis Peabody, of the Dental Department of the University of Kentucky, Louisville, honorary member of the Association, was introduced, and made some remarks in explanation of an instrument or appliance to be used in his clinics, in the treatment of root canals; the invention of Prof. John C. Blair, demonstrator of operative dentistry in the Dental Department of the University of Kentucky. The instrument consists of a small cylinder with a rubber bulb as in a syringe; the cylinder being filled with crystals of iodoform and heated over a lamp, the iodoform is sublimed, the fumes, by pressure on the bulb, being forced

through the nozzle into the roots of teeth filled with putrescent pulp, destroying all forms of germ life, overcoming one of the difficult features in the treatment of root canals. The instrument is new, and its present form crude, and the odor of the fumes of iodoform forms an objection to its use in the office, but it offers great possibilities in experimenting with other germ-destroying agents, perhaps menthol. In the Infirmary of the Louisville College of Dental Surgery, it has been used in three or four hundred cases which would otherwise have been condemned to the forceps; only one case, treated by a student, proving unsatisfactory, and in that, it was found that the root canal had not been opened into. Teeth which were extracted, after being treated in this manner, on being ground down on the lathe were found to be perfectly permeated with iodoform, even through the tubuli to the peridental membrane. The iodoform vapor thus introduced is deposited in crystals to the very apex of the root canal, forming a desirable permanent filling material at that point, as it is soluble only in ether or chloroform. It has been found, in Dr. Blair's experience of two years with it, very valuable in the treatment of blind abscess, of loose teeth, and in teeth that are too tender and sore, to be treated by the old methods. In one case after ten days usual treatment, of a very loose, inferior bicuspid, with no diminution of soreness or swelling; one application of this new treatment, by Dr. Blair, cured all soreness and swelling, and at the end of six days, the tooth was as sound as any other tooth in the jaw. Another case given was that of a superior lateral incisor, which was filled with the debris of a decomposed pulp, and had given trouble for four years; a single application subdued all irritation, and the tooth was filled immediately after the deposition of iodoform crystals from the vapor. In all cases Dr. Blair removes all debris, applies the vapor and fills immediately. He has had but one failure in two years. In conclusion, Dr. Peabody stated that his own personal experience with the new method had been limited; this "was not his baby, he was only its nurse." He did not want to overlook its imperfections, but thought that in a future modified form it offered great possibilities.

Owing to some misunderstanding in the notification of Chairmen of Sections, but one section was prepared with papers—that of Operative dentistry, which was called at the night ses-

sion of the first day. The Chairman, Dr. George G. Clement (Macon, Miss.), responded with an oral discourse, explanatory of a series of diagrams which he displayed, illustrating various types of incisor tooth forms; also similar teeth mounted in plaster, in support of a theory as to "Primary Causes of Decay," found in defects in enamel structure. He said that it was now universally admitted that it was of prime importance that the mouth, being the entrance of the alimentary canal, should be pure, clean and healthy. It seemed paradoxical that the teeth, though the hardest tissue of the organism should be the first to decay, while the brain, the softest tissue of all, is the last to decay. It is rare to find a human being with absolutely perfect teeth. As dentists we are called upon to repair defects and restore them to normal utility. It should be our work to prevent these defects, but patients usually come to us when it is too late for preventive measures.

Dr. Clement's first chart represented the lingual surface of incisors in which were seen certain fissures—defects in enamel structure, affording points where decay first starts. In a chart of the labial surfaces, similar defects were seen at the junction of the enamel and the cementum where a crevice would frequently be found. The natural defects are the initial or primary causes of decay, and all such fissures and crevices, it is claimed by Dr. Clement, should be cut out and filled in the best manner with gold, thereby preventing decay, which will otherwise be inevitable through the lodgment of particles of food, the formation of acids, and the generation of germ life. We do not want to wait until the patient is suffering from extensive ravages of decay. The approximal surfaces of teeth decay at the points of contact through pressure and the friction of natural lateral movements. Three bicuspid, imbedded in plaster were passed around in support of this theory; one had a slight fissure, another a small cavity, the third a large carious cavity. Dr. Clement claimed that if the second and the third tooth had been filled when in the condition of the first, the caries of their present condition would have been prevented. When there is no fissure, but only an abrasion caused by friction and pressure, the teeth may be separated, and the surface only polished. He said that cutting out and filling a fissure is an aseptic operation; if delayed, the use of antiseptics becomes necessary. The diagrams represented

three types of incisor teeth—one where they touch only at the incisor edge, with a narrow base at the gum margin; in this type we will find a small point of decay at the point of contact. Another type has a broad base touching only at the cervical margins where also we will find decay, due to pressure, though food will lodge higher up. A third type consisted of square, straight sided teeth; these touch the whole length of the sides, and if pressed apart with rubber, initial points of decay will be found all along the sides. Whether we adopt the germ theory or the acid theory, makes no difference in the facts; wherever continuity of tooth surface is interrupted decay is invited, even the slightest defect, which the eye, or even the instrument may not be able to detect. In perfect tooth form the external shape indicates the shape of the pulp cavity. In the narrow base tooth we are very liable, in excavating, to strike the pulp. In the bicuspid we are liable to touch the horns of the pulp. All defects or fissures should be excavated at once and filled with gold; all abrasions should be separated and polished.

In the discussion of the subject, Prof. Crenshaw, of the Dental Department of the Southern Medical College, Atlanta, Ga., Honorary Member of the Association, said that the square teeth represented in the diagram, and the narrow based incisors touching only at the cervical margins, instead of being typical tooth forms, were very unusual except as the result of slashing and filing.

Dr. Clement admitted that they were somewhat overdrawn, to illustrate his theory.

Dr. Crenshaw said that the speaker was correct as to the correlation between the external shape of the teeth and the shape of the pulp cavity.

By the study of the typical forms of teeth, we are enabled to make more satisfactory fillings, and especially to avoid the horns of the nerves.

Dr. Westmoreland (Columbus), thought we should give more study to the prevention of decay; that children should be safeguarded in embryo, so that they would come to us with good teeth. He considered eruptive diseases in childhood a great source of defective tooth structure and consequent decay. The defects in the labial aspect of the incisors, pointed out by Dr. Clement, were in nine out of ten cases caused by eruptive diseases occurring while the teeth were forming.

Prof. R. R. Freeman (Nashville, Tenn.), of the Dental Department of the Vanderbilt University, and Honorary Member of the Association, wished to endorse the words uttered as to the early care of the teeth, this being the greatest importance as to refinement, purity and healthfulness. From the time there is but one tooth, watchful care must be taken to secure cleanliness. If food was kept thoroughly cleaned out, there would be no chemical abrasion—acids are carried by capillary attraction to the point of contact. He is so thoroughly convinced of this necessity of thorough cleanliness that he puts across the corner of his bill-heads the motto, neither original or new, but always true, "Clean teeth don't decay." It will not do to begin at three years of age, nor at six months; the work must begin, or should have been begun three generations before the child was born. Little children forget to brush their teeth, that is true, but not more than to wash their faces or brush their hair; parents should look after the former as they do after the latter. The secretions in the mouth of a child are acid, as evidenced in the green stain, but this must be removed, and its renewal prevented by proper care. It is not the persons of most robust development that live the longest, but those who take the greatest care as to how they live. It is so with the teeth. It is not those that have the best structural development that will last the longest, but those of which care is taken. Establish correct habits in the earliest years of a child's life, and the work is done.

Dr. A. A. Dillehay asked as the causes of the decay when alkaline fluids predominated.

Dr. Clement replied that normal mouth fluids are always alkaline, but that local acids cause the trouble.

(To be continued.)

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE ninth annual meeting of the National Association of Dental Faculties was held at the Cataract House, Niagara Falls, commencing Monday, August 1, 1892.

Twenty-six colleges were represented, as follows:

Baltimore College of Dental Surgery—R. B. Winder.

Boston Dental College—J. A. Follett.

Chicago College of Dental Surgery—Truman W. Brophy.

Harvard University, Dental Department—Thomas Fillebrown.

Kansas City Dental College—J. D. Patterson.

Missouri Dental College, Dental Department of Washington University—W. H. Eames.

New York College of Dentistry—Frank Abbott.

Ohio College of Dental Surgery—H. A. Smith.

Pennsylvania College of Dental Surgery—C. N. Pierce.

Philadelphia Dental College—J. E. Garretson.

University of Iowa, Dental Department—A. O. Hunt.

University of Michigan, Dental Department—J. Taft.

University of Pennsylvania, Dental Department—James Truman.

Vanderbilt University, Dental Department—W. H. Morgan.

Northwestern College of Dental Surgery—B. J. Roberts.

Louisville College of Dentistry—Francis Peabody.

Indiana Dental College—J. E. Cravens.

Northwestern University Dental School—E. D. Swain.

Dental Department of Southern Medical College—William Crenshaw.

Dental Department of University of Tennessee—J. P. Gray.

School of Dentistry of Meharry Medical Department of Central Tennessee College—G. W. Hubbard.

University of Maryland, Dental Department—John C. Uhler.

Columbian University, Dental Department—H. C. Thompson.

Royal College of Dental Surgeons of Ontario—J. Branston Willmott.

American College of Dental Surgery—John S. Marshall.

University of Denver, Dental Department—Geo. J. Hartung.

The *ad interim* committee reported that it had investigated a charge preferred against the University of Maryland, Dental Department, by the College of Dentistry of the University of California, of graduating a person in less time than the rules demanded; that it found that no rules of the association had been violated, and had so reported to the parties in interest; that it had dismissed an effort for the reinstatement of the Dental College of Dental Surgery, Chicago, as not within jurisdiction of the committee, with the advice to reorganize the college before attempting to influence the association to change its action, which reorganization has since been accomplished.

The committee also stated that its value in settling such matters had been made so clearly apparent that it recommended that it should be made a standing committee, to be elected by the association, instead of being appointed by the president.

The report was received and placed on file and the recommendation with regard to the status of the committee was adopted.

The following resolutions, laid over from last year, were adopted :

Resolved, That in case of charges against any college no final action shall be taken until all parties concerned shall have at least thirty days' notice.

Resolved, That at all future meetings of the National Association of Dental Faculties the delegates shall consist of members of faculties, and demonstrators will not be received.

The following resolutions, also over from last year, were laid on the table :

Resolved, That after June, 1893, the yearly course of study shall be not less than seven months, two months of which may be attendance upon clinical instruction in the infirmary of the school, now known as intermediate or infirmary courses.

Resolved, That after the session of 1892-3, four years in the study of dentistry shall be required before graduation.

The following resolutions lie over under the rules :

Offered by Dr. Winder—

Resolved, That hereafter the graduates of pharmacy be placed on the same footing as the graduates of medicine, and be entitled to enter the second year or junior class, subject to the examination requirements of each college.

Offered by the executive committee—

Any college failing to have a representative present for two successive sessions without satisfactory explanation shall be dropped from the roll of membership of this association.

The chair, having been asked for a ruling upon the admission of graduates of pharmacy to the junior class, decided that under the rules they could only be admitted to the first year or freshman class.

The executive committee offered a report recommending the restoration of the American College of Dental Surgery to full membership, which, after an explanation by Dr. Marshall of the reorganization of the college, was unanimously adopted.

The executive committee reported on the application of the Western Dental College, of Kansas City, recommending that it lie over for another year. The report was adopted.

The report of the executive committee recommending the rejection of the application of the Tennessee Medical College, Dental Department, of Knoxville, Tenn., for irregularities in conferring the degree of D.D.S. and in the reception of students, was adopted.

The application of Howard University, Dental Department, Washington, D. C., was laid over for another year.

The following applications for membership, also reported by the executive committee, lie over under the rules :

United States Dental College, Chicago.

Homœopathic Hospital College, Dental Department, Cleveland.

Detroit College of Medicine, Department of Dental Surgery.

The report of the executive committee recommending that the Baltimore College of Dental Surgery be censured by the association for conferring the degree of Doctor of Dental Surgery upon Charles F. Forsham, M.A., LL.D., of Branford, England, *in absentia* and honorarily, in violation of the rules of the association, was adopted.

Dr. Truman offered an amendment to the rule regarding the conferring of the degree of Doctor of Dental Surgery honorarily, absolutely prohibiting the exercise of that privilege to the members of the association, but the association was lost, after discussion, it being the general sense that the present rule is a sufficient safeguard against the unworthy bestowal of the honor.

Dr. Cravens offered the following amendment to the constitution, which goes over under the rules :

Amend Article VII. so that it shall read as follows :

Art. VII. Any reputable dental college, located in any State of the United States, may be represented in this body upon submitting to the executive committee satisfactory credentials, signing the constitution, conforming to the rules and regulations of this body, and paying such assessments as shall be made.

The association adopted a protest against the classification of dentists as manufacturers, as provided in House Bill No. 7696, known as the Wilcox bill, and against the collection of statistics from dentists under its provisions, on the grounds that dentists

are not manufacturers in any sense, not being engaged in the manufacture, fabrication, or sale of any product having a merchandisable value; that all the laws heretofore passed in all the States and Territories and the District of Columbia distinctly recognize dentists as professional men: and that the attempt to collect statistics would be an injustice not only to them but to their patients, and that such statistics if collected would be valueless to the government because showing the products of a class of men not engaged in manufacture.

The following, offered by Dr. Winder, was also adopted:

Resolved, That the National Association of Dental Faculties recommends that their alumni write and demand of the Census Bureau of the United States the return of all statistical reports, as, under the recent agreement between the dental profession and said Bureau, lawyers, physicians and dentists are exempted from making statistical reports for the census of 1890; and that a copy of this resolution be forwarded to the chief of the Census Bureau.

A communication from the Post-Graduate Dental Association of the United States, suggesting the establishment by the college of short courses of training and teaching especially designed and arranged for practitioners was received and referred to the special committee.

The manuscript of a Compend of Maderia Medica and Pharmacy for Dental Students, by Dr. E. L. Clifford, of Chicago, was referred to the committee on text books with power to act.

Dr. Marshall offered the following resolution, which was adopted:

Resolved, That the secretary be instructed to notify the National Association of Dental Examiners that the National Association of Dental Faculties considers it out of its province to legislate upon the relative values of the L.D.S. and D.D.S. degrees.

The following were elected officers for the ensuing year: J. D. Patterson, Kansas City, president; H. A. Smith, Cincinnati, vice-president; J. E. Cravens, Indianapolis, secretary; H. A. Smith, Cincinnati, treasurer; F. Abbott of New York, J. Taft of Cincinnati, and A. O. Hunt of Iowa City, executive committee; James Truman of Philadelphia, Frank Abbott of New York, and Thomas Fillebrown of Boston, *ad interim* committee.

The president appointed as the committee on schools Drs. J.

A. Follett, Boston; S. H. Guilford, Philadelphia; E. D. Swain, Chicago; C. N. Peirce, Philadelphia; T. W. Brophy, Chicago.

Adjourned to meet at the call of the executive committee.

We are indebted to Dr. Hise, of *The Cosmos*, for this report.—ED.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE eleventh annual meeting of the National Association of Dental Examiners was held at Niagara Falls, commencing Monday, August 1, 1892.

The sessions were presided over by the vice-president, Dr. Magill, the elected president, Dr. L. D. Shepard, of Boston, explaining his resignation from the State Board of Massachusetts, which necessarily carried with it his resignation of the presidency of the association. The resignation was accepted with regret, and Dr. Shepard was unanimously accorded the privileges of the floor.

The following State boards were represented at the sessions :

Colorado—George J. Hartung.

Georgia—D. D. Atkinson.

Iowa—J. T. Abbott, J. B. Monfort.

Indiana—S. T. Kirk.

Maryland—T. S. Waters.

Minnesota—L. W. Lyon.

Massachusetts—E. V. McLeod.

New Jersey—Fred. A. Levy.

Ohio—Grant Molyneaux, Grant Mitchell.

Pennsylvania—W. E. Magill, Louis Jack, J. A. Libbey.

Tennessee—J. Y. Crawford.

Wisconsin—Edgar Palmer.

Kansas—A. H. Thompson.

The following boards were admitted to membership :

Virginia—J. Hall Moore.

North Carolina—V. E. Turner.

Oklahoma—D. A. Peoples.

South Dakota—C. W. Sturtevant.

District of Columbia—Williams Donnally.

At the instance of the committee of colleges, the following communication was sent to the National Association of Dental Faculties :

NIAGARA FALLS, Aug. 1, 1892.

To the National Association of Dental Faculties :

GENTLEMEN—Whereas, a very considerable abuse has arisen by the improper use by students of the various certificates of the schools, such as the “standing” and “passing” certificates, to support students and graduates under age in their attempt to illegally engage in practice; we therefore ask your association to request the various colleges to have their “standing” and “passing” certificates of such uniformity of terms in each case that they can be used for no other purpose, and that they be printed in few words and small type, and be signed only by the dean.

Respectfully,

NATIONAL ASSOCIATION OF DENTAL EXAMINERS,

FRED. A. LEVY, *Secretary*.

A committee of conference was appointed, consisting of Drs. Truman, Marshall, and Swain, on the part of the Faculties Association, and Donnally, Palmer, and Monfort, on the part of the Examiners Association, which after a consultation agreed upon a favorable report.

Dr. Lyon offered the resignation of the Minnesota board, which was laid upon the table, as it had evidently been offered as the result of a misunderstanding, and the board was requested to withdraw it.

The following resolution, offered by Dr. Crawford, was adopted :

Resolved, That when a member of any State board becomes a teacher of a dental school, his resignation from his board should follow.

A resolution protesting against the classification of dentists as manufacturers and the collection of census statistics from them under the provisions of House Bill No. 7696, commonly known as the Willcox bill, was adopted. The resolution was similar in terms to those adopted by other dental societies.

The committee on colleges reported that they had received reports showing that the actual number of students in attendance at the last sessions in the schools recognized by the Examiners Association was 2881; of graduates, 1357. In the schools not recognized by the association the students were 236; graduates, 96.

The report also considered desirable advances to be made in

educational methods, and offered the following memorial, which the secretary was directed to transmit to the National Association of Dental Faculties:

The National Association of Dental Examiners would respectfully memorialize the National Association of Dental Faculties to authorize two advances in the system of dental education.

These are: First, that your association require the universal enforcement of a higher grade of preliminary education of candidates for matriculation. This proposition lies at the foundation of dental education, in which is involved the quality of the graduates of the future, upon which depends the advancement, the standing, and the dignity of the dental profession.

The second proposition is that complete preparation be made in each school for laboratory technique in the studies of histology, pathology, and in each of the departments of dental surgery and dental prosthesis, and that this method of teaching be made a requirement of the schools.

The committee also reported the following amended list of colleges which they recommend as reputable:

Baltimore College of Dental Surgery, Baltimore, Md.

Boston Dental College, Boston, Mass.

Chicago College of Dental Surgery, Chicago, Ill.

College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.

Dental Department, Columbian University, Washington, D.C.

Dental Department, National University, Washington, D. C.

Northwestern University Dental School.

Formerly Dental Department of Northwestern University [University Dental College].

Dental Department of Southern Medical College, Atlanta, Ga.

Dental Department of University of Tennessee, Nashville, Tenn.

Harvard University, Dental Department, Cambridge, Mass.

Indiana Dental College, Indianapolis, Ind.

Kansas City Dental College, Kansas City, Mo.

Louisville College of Dentistry, Louisville, Ky.

Missouri Dental College, St. Louis, Mo.

New York College of Dentistry, New York City.

Northwestern College of Dental Surgery, Chicago, Ill.

Ohio College of Dental Surgery, Cincinnati, Ohio.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.

Philadelphia Dental College, Philadelphia, Pa.

School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.

University of California, Dental Department, San Francisco, Cal.

University of Iowa, Dental Department, Iowa City, Ia.

University of Maryland, Dental Department, Baltimore, Md.

University of Michigan, Dental Department, Ann Arbor, Mich.

University of Pennsylvania, Dental Department, Philadelphia, Pa.

Vanderbilt University, Dental Department, Nashville, Tenn.

Western Dental College, Kansas City, Mo.

Minnesota Hospital College, Dental Department, Minneapolis, Minn. (defunct.)

St. Paul Medical College, Dental Department, St. Paul, Minn. (defunct.)

American College of Dental Surgery, Chicago, Ill.

The report was adopted.

The following officers were elected for the ensuing year: W. E. Magill, Erie, Pa., president; J. Y. Crawford, Nashville, Tenn., vice president; Fred. A. Levy, Orange, N. J., secretary and treasurer.

Adjourned.

ALL SORTS.

GUTTA-PERCHA should never be softened for use by the direct heat of a flame, but by heat on a tray over steam or hot water.

IN USING CHLORA-PERCHA in root cavities, if the chloroform evaporates too rapidly, add a little oil of cinnamon, or winter-green, and it will remain soft a long time.

EUCALYPTOL, the ethereal oil of eucalyptus globules, has a peculiar action on the suppurative process. It paralyzes, as has been ascertained, the white-corpuscles as soon as they have penetrated the blood-vessel wall during inflammation. The process of tissue disintegration is hence checked by this drug.—*Cal. Homœopath.*

WHO TAKE DENTAL JOURNALS!—The best men in all the walks of the profession. The best theorists—the best operators—the best mechanics. If you want to be in a front rank, you *must* do the same. Take them, pay for them, read them.—*Western Journal*

FOR SENSITIVE DENTINE Dr. Bogue dips a pledget of cotton into carbolic acid, and then into powdered cocaine, and places it into the cavity. This obtunds sensibility enough to use granulated chloride of zinc with little or no pain. In ninety seconds the insensibility of the cavity is complete.

IN COCAINE POISONING the patient should be placed in a horizontal position. Bathe the face in cold water, let the patient inhale nitrate of amyl, give coffee or caffeine or inject ether subcutaneously, massage, flagellations, and artificial respiration should be resorted to if necessary.—*Review*.

A USEFUL ADJUNCT to the laboratory lathe is the attachment to a chuck on your lathe of a four- or five-inch emery wheel with an iron center, such as is used by metal workers in grinding and polishing. Besides being useful in grinding and sharpening tools, it serves as a fly wheel when using opposite sides of the lathe in grinding teeth and polishing plates.—C. D. MILES, *Items*.

GANGRENE FROM CARBOLIC ACID.—L. RODE, of Denmark, reports a case of carbol gangrena. The patient, a healthy lady aged 24, applied a 2-per-cent. solution of carbolic acid for some slight contusions of the right thumb and back of the hand. This was followed by an extensive gangrene of the skin, extending up to the lower part of the forearm; no toxic symptoms, and no carbol-urine.—*Hospitals Tidende*.

SECONDARY DECAY AT THE CERVICAL BORDER.—DR. S. J. SPENCE thinks that certain lines of depression lying near the gum line on approximal surfaces of teeth are the cause of much secondary decay, when the filling inserted is not properly cut down with knife blade instruments to the surface of the tooth. He claims a finishing tape or disk passes over the depression and leaves a projecting edge on the filling at that point.

TREATMENT OF OBSTINATE NEURALGIA WITH HYOSCYAMINE.—M.

VERNETIL, in a communication to the Surgical Society of Paris (*Le Prog. Méd.*), referring to the surgical treatment of obstinate neuralgia, said that all therapeutic resources should be exhausted before surgical interference was undertaken. He recalled a case which was cured by hyoscyamine after resection of all the ends of nerves and even amputation had failed to give relief.

DENTALBA.—

R	Precipitated chalk,	12 oz.	Ammonia (stronger)	1 dr.
	Prepared chalk,	6 "	Carmine,	$\frac{1}{2}$ "
	Powdered orris,	6 drs.	Otto of rose,	12 minims.
	Essence of vanilla,	3 "	Oil of cloves,	12 "
	Tincture coumarin,	6 "	Glycerine,	3 oz., or a
	" benzoin,	3 "		sufficiency.

—*British Jour.*

THILAMINE—This is a new modification of lanolin, obtained by Liebels by the action of sulphur on lanolin, and which is stated to be a definite compound. Dr. Saddelfeld of Berlin, has experimented with it in his dermatological practice, and reports very favorable on its action in various affections. It gives rise to no irritation and allays all itching, and is said to be destined to supercede Lebias ointment in dermatological work.—*Br. and Col. Drug.*

CLARIFYING WAX.—Collect in a basin all your old wax, and add a pint of water containing half an ounce of oxalic acid crystals. Boil slowly for half an hour and set aside to cool, giving it plenty of time. Scrape off the refuse wax underneath the cake, and if the light color from the effects of the oxalic acid is not desirable, melt it in a pan without water and stir in thoroughly a sufficient quantity of liquid butter color or some other pigment.—C. W. BERRY, *Items.*

BORO-BORIC ACID is formed by heating equal parts of borax, boric acid and water to the boiling point. On cooling, crystalline masses separate. For use it should be dissolved in boiling water (which will dissolve seventy per cent. of the salt). Upon cooling most of it remains dissolved. It is soluble in cold water to the extent of sixteen per cent. At the temperature of the body, thirty per cent. It is neural in reaction and of equally antiseptic value with boric acid.

TREATMENT OF ANTRAL DISEASES.—DR. CLIFFORD thinks it better to pay more attention to systematic treatment of diseases of the antrum rather than to depend altogether on local treatment. The cause must in many cases be systematic, and we can not reasonably expect to effect a permanent cure unless we remove the cause. He had had cases which he had relieved without opening into the antrum or establishing any drainage, by paying attention to remedial measures applied to the system at large.

A ROOT OPENING INTO THE ANTRUM should never be filled, but taken out. Should an attempt be made, however, to fill the canal of such a root, and a piece of gutta-percha be forced through (into the antrum), it would undoubtedly augment the trouble. Allow me to remark: A root of a tooth penetrating the floor of the antrum, diseased, so as to allow of the forcing of any substance through it into the cavity, should be at once removed; any attempt to keep it in will result in great trouble and excessive loss of tissue.—DR. FRANK ABBOTT, *Items*.

BE CHARITABLE TO THE YOUNGER MEN in the profession and extend to them a helpful hand and a kind word. For who knows the many efforts required to gain a knowledge of dentistry and in trying to attain a proper degree of proficiency in order to compete with the older practitioners in this rapidly advancing profession. He may be the one to bring forth many important and desirable things, which in time may prove to be extremely useful to *every dentist*. Then we will doubly appreciate *all*, and *more* than we ever thought possible.—DR. A. J. McDONALD, *West. Jour.*

SAURIDON, A NEW DISINFECTANT.—A new disinfectant, styled Sauridon, is being manufactured in England. It is said to be a residual product of an uncommon kind of blackstone shale, which is composed of animal and vegetable remains, is remarkably light, and yields a large proportion of heavy volatile oil. The oil is extricated by distillation, and the residual product is reduced to grains of different sizes, varying from a fine powder to the size of a pea. The powder is claimed to have an instantaneous effect upon obnoxious matter, while also being tasteless and colorless, and harmless to all animal life.—*Notes on New Remedies*.

BROKEN CONE-SOCKET EXCAVATORS make the very best plugger points for the Snow and Lewis automatic pluggers. They just fit and the newly fractured points are better than serrations.

An infallible and simple remedy for dark joints: After the case is flaked, open and remove all traces of wax, put a drop of water on the joint, and with a quill tooth-pick work in a little dry plaster; after standing ten minutes pack and vulcanize. If properly done you can't have a dark joint if you want one.—GEO. M. MERRITT, *Items*.

BRAUN'S MAGNETIC CARRIER.—This is an ingenious application of a magnet for the purpose of conveying small metal concave discs to any particular spot in the cavity of a tooth. We have found that, in this way, the disc may be picked up and charged with medicaments, either with a view of preserving or destroying the pulp, and then placed in the required spot with great exactitude, with more ease than with the forceps, besides allowing, at all events in some cases, a better view. If necessary the disc can be disengaged from the end of the carrier by holding the former *in situ* with a fine instrument and withdrawing the latter.—*Brit. Jour.*

A RUBBER-DAM CLAMP with a short rubber band, is an effective device for fastening napkins or towels around patients' neck, holding them firmly in position. It is much more easily adjusted than a pin.

A device for cleaning pliers of refuse cotton balls, which I have found convenient, is a small square of carding wire mounted on a ball of wood. I keep it on my bracket table, and when I wish to remove cotton, simply touch the wire, and pliers are at once freed, thus doing away with throwing the balls of cotton on the floor, reaching across patient to deposit them in the cuspidor. It is but an instant's work to clean the wire after each operation is finished.—DR. ALICE JARVIS, *Items*.

FACTORS IN THE PRODUCTION OF SUPPURATION.—DR. A. C. ABBOTT, of Philadelphia, in an excellent paper on this subject, concludes that suppuration cannot be considered a specific process in the same way that tuberculosis, diphtheria, and anthrax are specific processes, but that the causes underlying it are manifold, in most cases being the result of the presence in the tissues of the

common pyogenic cocci; frequently following the invasion of the tissues by organisms not normally pyogenic in character; produced experimentally by a variety of irritating substances without the presence of bacteria, and by the poisonous products of the growths of bacteria, and, finally, following the introduction into the tissues of the proteid substances that make up the body of the bacteria themselves.

ANTRAL DISEASE FOLLOWING THE GRIP.—DR. J. S. MARSHALL has had four cases, in each of which there had been discharges into the nasal cavity of thick mucus,—not bad smelling, nor was it pus, but simply apparently an excess of mucus which had filled the cavity and was discharged through the nose. He thought it advisable to open into the antrum between the roots of the second and third molars, as this is usually the most dependent part of the cavity. He usually used, as an antiseptic, Thiersch's solution,—a bland antiseptic, and very satisfactory:

Boracic acid,	-	-	12 parts;
Salicylic acid,	-	-	4 parts;
Water,	-	-	1000 parts;

THE CHARACTERISTIC SYMPTOMS OF ACUTE PULPITIS, DR. HUGENSCHMIDT says, are intense neuralgic pain in the region supplied by the fifth nerve, the point of the maximum intensity being at the root of the affected tooth, which is the seat of the disease. The proper treatment is to wash the cavity carefully by means of warm water injected from a small syringe, using also, if necessary, a stillete with a little cotton wrapped about the end of it. After the cavity has been thoroughly emptied, cotton should be placed in the cavity, after having been saturated with either the following solutions: Menthol, 18 grs., chloroform, 30 grs.; or, hydrochlorate of cocaine and hydrochlorate of morphine, each 4 grs., and creosote sufficient to make a creamy paste.

WHAT IS A BORE? Why:—The dentist who in describing practical cases at Association meetings always speaks of his patients as being senators, governors, aldermen, rich, prominent, proud, beautiful, belles, etc., etc. He commences his prelude somewhat as follows: "A young lady, prominent in society, very beautiful and daughter of Judge ——, the richest man in our city, president of our largest bank," etc., etc., *ad nauseum*. A member of

the Missouri Association said at the recent meeting, "that so far as science is concerned it mattered not whether these patients were rich or poor—patrician or plebian," and that such descriptions should be omitted. He might have added that in about ninety-nine per cent. the statements are premeditated falsehoods.—*Western Journal*.

WHY DIFFERENT RESULTS FOLLOW THE SAME LINE OF TREATMENT IN SIMILAR PATHOLOGICAL CONDITIONS IN THE ORAL CAVITY.—At the conclusion of an article on the above subject in the *Western Journal* Dr. J. D. Patterson says :

"In summing up upon the subject we see therefore that the pathological conditions of the oral cavity, we must consider a great variety of factors to determine why certain results come, or do not come under treatment.

- 1st. The intelligence of the operator.
- 2d. Hereditary constitutional conditions.
- 3d. Acquired conditions of tissue.
- 4th. Cachexia.
- 5th. Local tissue conditions acquired by local disease.
- 6th. Hygienic conditions.

The study of the subject is one of practical interest, and when fully comprehended will enable us to reach success when hitherto we have oftentimes been confronted with failure."

NEURALGIA.—For six months a lady, at frequent intervals, had terrible neuralgia of the shoulder, going down to the forearm. I asked her if her teeth had been examined, and she said that they had never been suspected by her physician as the cause of the trouble. I found under the free margin of the gum, on the buccal side of the wisdom-tooth, a cavity that penetrated to the pulp chamber. It was such a difficult place to get at, and she had suffered so long, I advised her to have it out, and after the extraction of the tooth the neuralgia disappeared from the shoulder.

I have seen other cases of neuralgia where, apparently, a very slight thing caused it all. I remember one case of a patient suffering with intense neuralgia, where there were no cavities in the teeth, except what had been well filled, but there was a noticeable recession of the gums, which I decided was the cause, from their hypersensitiveness. The exposed parts of the teeth

were treated with a little nitrate of silver, which removed the sensitiveness and also the neuralgia.—Dr. SMITH, *International*.

BUCCAL AND DENTAL MANIFESTATIONS OF INFLUENZA.—In an article on this subject Dr. HUGENSCHMIDT sums the subject up as follows :

In a word, we have met with : 1. A special kind of infectious ulcerous stomatitis due to influenza. 2. Ulcerous or simple gingivitis, accompanied by dental generalized periostitis. 3. Suppurating alveolo-dental periostitis. 4. Neuralgia of the fifth nerve. 5. Accidents of evolution of the wisdom-teeth. Simple and phlegmonous tonsillitis, more or less developed, has also been observed very often by general practitioners.

As local treatment, nothing special. Antiseptic mouth-washes, thymol, boric acid solution.

Application on the gums of the following preparation :

Salol, 6 grammes ;

Liquid vaseline, 40 grammes. M.

Sig.—External use.

Liquid alimentation. Against pain, the following mixture painted over the gums :

Menthol, 3 grammes ;

Chloroform, 5 grammes. M.

EYE STRAIN.—The right eye of a dentist who does much gold-filling, after fixing the same brilliant spot for hours, gets tired and becomes weak long before the left one. Deviation of the visual rays is an affection which almost always affects the right eye, and is caused by the ocular globe being twisted away from its normal position, when some muscles are overstrained and others relaxed ; this habit in time dims and weakens the vision. The best and simplest way to avoid this trouble is to so place the patient in the chair as to bring all available light on the point of operation, and to look at it in a straight line, and not from a slanting direction. Also, one must learn to operate on both sides of the patient, and from behind as well as in front. By means of these different positions the visual rays enter squarely into the eye in its normal and unstrained position, and not sideways, and both eyes work equally. These methods of operating are soon learned, and their advantage quickly perceived. Operators will do well to think of the means of preserv-

ing their eyesight while still young, before becoming slaves to spectacles. Their usage is a source of annoyance to the practitioner, because the patient's breath clouds them, causing loss of time in removing and wiping.—DR. DE FREY, *International*.

EROSION OF THE TEETH.—DR. E. T. DARBY thinks this is the result of some constitutional derangement, which so alters the product of the salivary and mucous glands that instead of secreting a harmless fluid, it becomes one of acid reaction, capable of decalcifying the enamel and dentine, and that the inherent structure of the tooth, histologically considered, has nothing whatever to do with it.

The frequency with which dental erosion and the gouty diathesis have been associated in the cases coming under my observation he says, has led me to believe that there is, in a much larger proportion of cases than we have been accustomed to think, a gouty diathesis, and that this, being unrecognized and uncontrolled, becomes the hidden and mysterious element which is producing such unsightly and uncomfortable conditions in the mouths of our patients.

I would not be understood as asserting that erosion and gout are always associated, for I have often seen the former where no symptoms of the latter have been recognized. Yet it must be remembered that the gouty dyscrasia may exist for a long period without serious impairment to the general health, and may never be attended by an acute attack.—*Cosmos*.

AMALGAM.—Brittleness being one of weaknesses of this material every possible precaution should be taken to prevent thin edges. Amalgam fillings being liable to displacement before setting, through carelessness of the patient, precaution should be given.

Failure to secure an amalgam that has the best qualities, irrespective of price, is another cause of ill success. Get a good amalgam and stick to it.

Fear to ask as high a price for an operation as is justifiable, when nothing else can save, has caused slighting. Because your filling is amalgam, do not fail to do your best work. See that your alloy is well amalgamated, avoid slovenly inserting it, leaving masses of the material at the cervical margin, projecting to irritate the soft tissues, or neglecting to polish the filling when

hard. Such neglect is as bad practice as it would be to leave a gold filling unfinished.

Some will say "it takes too much time." We should not value our time too highly to overlook those small things which, if well done, are bound to give good results in the end.

Our motto as dentists should be "Do our work thoroughly, cost what it may."—DR. L. E. DAY, *West. Journal*.

POLISHING INSTRUMENT POINTS.—Put into a polishing cylinder (described below) the excavator points, burs, or other instruments, and put in with them about two teaspoonfuls of the finest flour of emery; close the cylinder; screw it to the lathe, and run at a good speed till all rust and spots are removed; take off the cover and examine frequently; when clean, remove from the cylinder, pour out the emery, and wipe out. Put in one teaspoonful of crocus, two of clean sawdust, a little olive oil, and the points; put on the cover and run the lathe till polished to suit; remove from cylinder, and wipe off with chamois skin.

The excavator points should now be sharpened on an Arkansas stone. The engine burs can be nicely sharpened as good as new; either with a knife-edged Arkansas stone by hand, or with a round knife-edged stone in engine.

The Polishing Cylinder.—To make the cylinder for this work: Take a piece of seamless brass tubing, one and a half inches in diameter, inside measurement, and three inches long. Close one end by fitting in a bottom of heavy brass. Now make a heavy brass nut that will screw on to the late head; then solder this nut to the center of the bottom piece, and place the bottom in the cylinder, solder fast with soft solder. Next make a tin or copper cover, make it to fit on tightly, so that it will not come off during use.—DR. STEELE, *Items*.

MELTING AND ROLLING GOLD.—In melting gold, charcoal, gas-oil or illuminating gas, are the best fuels. Coal should not be employed, as the gases from it make the gold brittle. There is nothing better than the Fletcher furnaces, which are heated by common illuminating gas. The gold or alloy should be put in the crucible and a little borax added. Do not employ the great quantity that is too frequently used. The ingot mould should be warmed, but not heated. When the gold is melted, turn it into the ingot mould and let it cool. If the amount is considerable, it

should then be broken into as small fragments as practicable, and melted over again, without borax. When fairly melted, add for every four ounces a piece of saltpeter the size of a pea, or a teaspoonful of sal-ammoniac and charcoal. Cover for a couple of moments and then pour.

A great deal depends upon the way in which gold is rolled. *The American Jeweler* says that unless a heavy strain be put upon it the first and second times passing, it will stretch the gold on the surface, while the middle portions not being pressed will retain the granulations of the melting process, and the gold will crack. A heavy strain at first imparts the right grain to it all the way through.

When the ingot has been rolled to about twice its length, if it be as fine as 18 K. it should be annealed. If it be an alloy less fine, it should be annealed sooner. It should not be quenched until it has become black, or it will be likely to split or seam.—*Dent. Practitioner.*

COLD SOLDERING.—“The flux consists of 1 part of sodium to 50 parts of mercury. This must be carefully protected from the atmosphere in a glass-stoppered bottle. This has the property of amalgamating any metal with which it comes in contact, forming an adhesive amalgam even on cast iron. First amalgamate the surface to be joined by rubbing them lightly with the flux. This is the equivalent of tinning in the ordinary soldering methods. Then take one (or more as the case may be) of the pellets of copper-amalgam and warm till the mercury begins to exude at the surface, wipe off the exuded drops with a clean rag, and drop the pellets in a small mortar and rub till smooth, of about the consistency of prepared white lead; smear this over one of the surfaces to be joined, and apply the other surface to the latter as quickly as possible. The joint sets so firmly in the course of two and a half or three hours, that only a hammer or cold chisel (or a degree of heat sufficient to melt ordinary solder) can separate the surface.”—*National Druggist.*

I called on the editor of the *National Druggist*, to get some further information on the above subject. He told me he had cold-soldered a band saw, and to his certain knowledge it had lasted for over a year.

Mr. Windhorst, a dental student, used the cold soldering pro-

cess to replace a tooth on a bridge with satisfaction, also soldered the shank of a mouth mirror, which had been broken, and could not be hot soldered without taking the glass out.

“For an even stronger and much quicker setting solder, where expense is no item, take the following to replace the copper and mercury (using the same flux):

Silver	-	-	-	-	8 parts.
Tin	-	-	-	-	10 parts.
Bismuth	-	-	-	-	1 part.
Platinum	-	-	-	-	1 part.

“Melt together and cast an ingot. Rasp to filings, or otherwise reduce to small particles. When required for use mix about 3 parts of filings and 1 of mercury in a small mortar till it becomes smooth paste. This sets in about fifteen minutes, and can not be made workable again by heat; it must be mixed as required.

“The omission of the platinum reduces the strength of the solder, and lengthens the time required to harden by about one hour. The omission of bismuth makes a more granular mass, which is better for filling up crevices, with bismuth it is as smooth and plastic as potter’s clay. Joints made by this solder are almost inseperable. It is very valuable in repairing surgical and philosophical instruments, the brazing of delicate springs, and in all cases where the application of heat would be hurtful or destructive.”—DR. J. G. HARPER, *Western Journal*.

SOCIETY NOTES ON INFECTION, ETC.—DR. NEWKIRK: I wish to show you a receptacle which I have used for a number of months for the purpose of keeping broaches in an aseptic condition. I am associated in an office with a physician, and some months ago he purchased some wooden bottles for dispensing tablets, and I conceived the idea that if I were to thoroughly saturate these wooden bottles with the oil of cassia, and after thoroughly cleansing my broaches, place the broaches in them, I might be able to keep them in a better condition than if they were kept in my operating case or in a glass vial. You will find broaches in each of these bottles, and if they are taken out you will discover they give off a strong odor of oil of cassia. Perhaps they are not thoroughly aseptic, but they much more nearly approach it than they would be if not subjected to this diffusive medicament.

DR. C. A. KITCHEN: In connection with the remarks of Dr. Black, I will speak of a case that occurred in Rockford in which Dr. Taggart lost his life by having a slight scratch in performing an operation. Dr. Fitch nearly lost his life by a similar occurrence.

DR. BROPHY: In the city of Chicago a few years ago a brilliant young physician lost his life in the same manner as Dr. Taggart, of Rockford. The gentleman was Dr. Hibbard, son of one of our most prominent citizens. All efforts to save him were unavailing.

There is one practical lesson that may be learned from this paper with reference to the use of broaches. The essayist did not speak of it in particular, and that is, a great many operators are of the opinion that if they make use of a broach which is thoroughly disinfected and is truly aseptic, it is sufficient. Let us take, for instance, the upper molar tooth, the pulp of which has died and the contents are of such a character as to infect the broach. We introduce a broach that has been thoroughly sterilized, into one of those canals and then possibly carry it into another canal in which the pulp is not thoroughly devitalized. We meet with many such cases. The palatal tooth is devitalized, one of the buccal roots is devitalized, but the other buccal root is not. By this procedure we may infect the part so as to lead to trouble. I have seen cases of infection that have been a great source of trouble. It teaches us a lesson, namely, that the operator should use at least three broaches, one for each canal, in operating on teeth which have three roots, each broach sterilized, and by so doing we may proceed with the least danger of carrying infection from one canal to another. The same reason exists why each instrument should be sterilized when using them in the treatment of teeth having two or more canals as there should be in carrying them from one patient to another. That is a fact often lost sight of in the management of pulpless teeth, or in the use of broaches, in their treatment.

DR. HARLAN: FOR STERILIZING TREATMENTS a ten per cent. solution of boro-glycerine in water will disinfect your forceps, broaches and cutting instruments, and will leave them without a bad smell. That is one solution that may be used. A saturated solution of silico-fluoride of sodium, which is a cheap drug, can be used to disinfect instruments after they have been cleaned, and

there is no odor or taste to it. I use both of them. I make these solutions instantan on the desk from time to time. Of course, there are a great many different agents that may be used for disinfecting instruments, but I prefer to limit them to those that are soluble in water.—*Ill. So., Review.*

GUM-LANCING.—In a letter to the *University Medical Magazine*, on the subject of lancing the gums of teething children, Dr. H. C. Wood says as follows :

Clinically, I am absolutely sure that I have seen convulsions, sick stomach, great restlessness, fever, and various other functional disturbances in young children, immediately cured by the use of the gum lancet, after the failure of various other well directed measures for relief. Theoretically, I am in accord with Dr. Kirk, in believing that Dr. Forchheimer absolutely misses the point of the matter, by his failure to understand that the good achieved is not due to the local blood letting or to the relief of the inflammation of the gum, but to the removal of the backward pressure upon an extraordinary sensitive and, at such times, congested nerve pulp. As was long ago pointed out by Dr. J. W. White, at the period of eruption the root of the teeth are incomplete. "Instead of the conical termination and minute foramen, which characterize a perfected tooth, the aperture is nearly as large as the tooth itself, and thus when the sensitive pulp, composed of connective tissue, blood vessels, and nerves, is in a condition of irritation because of the morbid activity of the process of dentition—augmented vascular and nervous action—there may be produced a hyperemià sufficient, possibly, to cause the protrusion of a part of the mass from the incomplete aperture of the root, giving abundant cause for extreme constitutional disturbance."

I have myself seen a seemingly incurable epilepsy in an adult permanently cured by the removal of a persistent milk or first dentition tooth. Amaurosis and various other conditions in the adult, are well known to be the result of irritation of the trigeminal nerve by faulty teeth. How much more evil is to be expected from teeth irritation in the child !

In conclusion, I reaffirm that whatever the theory in the matter may be, I am positive that gum lancing is the most important therapeutic measure. It is essential, however, that it should be thorough, and with the object of dividing the dense tissues that bind down the teeth.

SOCIETIES.

AMERICAN DENTAL ASSOCIATION.

THE election of officers for the ensuing year resulted as follows:

President, J. D. Patterson, Kansas City, Mo.; First Vice-President, J. Y. Crawford, Nashville, Tenn.; Second Vice-President, S. C. G. Watkins, Montclair, N. J.; Corresponding Secretary, F. A. Levy, Orange, N. J.; Recording Secretary, Geo. H. Cushing, Chicago, Ill.; Treasurer, A. H. Fuller, St. Louis, Mo.

Executive Committee for three years, Drs. W. W. Walker, of New York, S. G. Perry, of New York, and D. N. McQuillen, of Philadelphia.

The society will meet next year at Chicago, Ill., on the second Tuesday in August.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

DR. G. W. DECAMP, Mansfield, O., was badly injured Aug. 7th by the kick of a horse.

"Mr." is the favorite title at Harvard, and even the President of the University is usually spoken of as Mr. instead of Dr.

"THE heavy work of the world is not done by men who eat the greatest quantity. Moderation in diet seems to be the prerequisite of endurance."—*Anon.*

DR. J. R. CALLAHAN, Cincinnati, announces that he will remove to 97 West 8th Street on or about September 1st, 1892. He will occupy one floor of the new building erected for office purposes by Dr. Frank A. Hunter.

DR. L. E. CUSTER, of Dayton, Ohio, who has spent the summer in Europe on a bicycle, sends us an interesting account of the meeting of American dentists, which will well repay perusal. It is printed on another page of this number.

DR. J. ALBERT KIMBALL, of New York, aged about 49 years, committed suicide August 16, 1892, by cutting his throat. Dr. Kimball will be remembered as the inventor of numerous little contrivances and the editor and publisher of "*The Dentist Himself*" of which only one number was issued.

COCAINE AND WHISKY.—Lee Rosenthal, of Lima, Ohio, took cocaine to have a tooth extracted, but he was too nervous and the dentist could not proceed. He went home, drank some whisky and was soon a raving maniac. He recovered from this only to die. An investigation is in progress.—*Local paper.*

DR. W. D. KEMPTON. Cincinnati, has published an excellent "Vest Pocket Guide to Cincinnati and Vicinity." He is also the author of "Star Dust" which he says is "A very ordinary book, By a very ordinary writer, In a very ordinary style, On very ordinary topics, At the very ordinary price of \$1."

THEY ARE STILL DISCOVERING how to harden copper "so as to rival steel." This time a Canadian blacksmith, Ferdinand Allard of Quebec, is the man. In Our Aftermath for December, 1891, we noted that Peter Johnson, of Dassel, Minn., had made the same discovery, but that seems to have been the last of Peter.

In England, where the title of "Honorable" has become as common as are military titles in the United States, it is proposed that the more obscure dignitaries be permitted to distinguish themselves with the prefix to their names on visiting cards. The excuse is that otherwise their distinction may go without recognition.

NEW MEDICAL AND DENTAL COLLEGES almost invariably form their faculties of young and untried men so far as teaching ability is concerned. It is well known that many good teachers are poor operators and vice versa. Just the opposite course is pursued in literary and classical schools,—new schools continually offering inducements to get from older schools their most experienced and successful teachers.

DR. LAUDER BRUNTON says "it was a magnificent stroke of genius on the part of Sir Andrew Clark when he informed Mr. Gladstone that he had one mouth and thirty-two teeth, and that for every mouthful of food he took every tooth should have a chance, so that he should take thirty-two bites to every mouthful. And if the patient has lost some of his teeth, he should allow two bites for every missing tooth, and even that will not always do if many teeth have gone."

SHE WILL WAIT AWHILE.—One of the most remarkable cases on record of dependence in faith cure is that of a Dexter woman who is reported as having become so infatuated with the Christian Scientist theory that she laid away on the shelf her false teeth that she had worn several years, declaring that she had faith that natural teeth would grow again. She has waited patiently for this result for six months, but for some inexplicable reason the new teeth yet delay their coming.

TO PRESERVE A SOLUTION OF HYDROGEN DIOXIDE. E. R. Squibb & Sons say "It is fairly stable at all ordinary temperatures below 77° F. for days and weeks together if not agitated. Any slight degree of decomposition is indicated by small bubbles of oxygen rising through the solution to the surface, and agitation produces a considerable effervescence, but rather active and

numerous streams of bubbles are required to indicate a loss of a tenth of a volume a day. *It should not be tightly corked*, for tight corking does not prevent nor retard decomposition; and at whatever rate it may be decomposing the oxygen set free is useless to the solution and should be allowed to escape rather than create a pressure that would blow out the cork or burst the bottle. In hot weather it should be put in a refrigerator, especially if to be kept for more than a few days."

H₂ O₂ FRESHLY MADE.—E. R. Squibb & Sons, Brooklyn, N. Y., "prepare and offer for sale a small wooden box containing the materials for making extemporaneously, as may be required, six portions, each of 473 Cc., or 1 pint, of a pure solution of the strength of ten volumes, with full directions for the preparation and management of the solution whenever and wherever it may be required. These materials do not deteriorate by age or transportation, are not subject to breakage or any danger in transportation or keeping, and although sufficient to yield six bottles, occupy a space less than two, at a cost not greater than six bottles (\$3.50).

The materials are entirely complete within themselves (except for two bottles and a funnel), and the directions are so full and complete that any physician, pharmacist, or intelligent nurse should be able to follow them step by step to the result of obtaining a pure solution of a definite ten volume strength, which, if not transported nor agitated much, will keep, uncorked or loosely corked, for many days without material loss of strength." The materials consist of barium dioxide, phosphoric acid, filters, diluted sulphuric acid, and neutral litmus paper.

PHILOSOPHY.—

The signs is bad when folks commence
 A-findin' fault with Providence
 And balkin' 'cause the earth don't shake
 At ev'ry prancin' step they take.
 No man is great till he can see
 How less than little he would be
 Ef stripped to self and stark and bare
 He hung his sign out anywhere.
 My doctern is to lay aside
 Contentions and be satisfied.
 Jest do your best, and praise er blame
 That follers, that counts jest the same.
 I've allus noticed great success
 Is mixed with troubles more or less,
 And it's the man who does the best
 That gets more kicks than all the rest.

—James Whitcomb Riley.

OHIO MEDICAL UNIVERSITY DENTAL DEPARTMENT, Columbus, Ohio, begins its first session September 7th, 1892. The following compose the faculty (omitting the professorships filled by members of the medical faculty):

A. F. Emminger, D.D.S., Dean, Professor of Principles and Practice of Dental Science and Lecturer on Office Ethics and Practice. A. O. Ross, M.D.,

D.D.S., Professor of Operative Dentistry and Oral Surgery. G. A. Billow, A.M., D.D.S., Professor of Dental Materia Medica, Therapeutics and Pathology. C. A. Eckert, D.D.S., Sec'y, Professor of Prosthetic Dentistry. James Silcott, D.D.S., Professor of Metallurgy, Crown- and Bridge-work. E. C. Mills, D.D.S., Lecturer on Orthodontia. Gilbert H. Barger, LL.B., Lecturer on Dental Jurisprudence. J. E. Barricklow, D.D.S., Lecturer on Anæsthetics. R. W. Davenport, Demonstrator of Crown- and Bridge-work.

The dental members of the Board of Counselors are Drs. H. H. Harrison, Wheeling, Va.; Grant Mitchell, Canton; Jno. R. Callahan, Cincinnati; H. R. Clark, Circleville; W. H. Sedgwick, Granville; W. R. Lilly, Circleville; A. T. Whiteside, Dayton; W. H. Hague, Delaware; Edwin Waddell, Greenfield; M. Palmiter, Lancaster; C. M. Roe, Mansfield; E. H. Raffensperger, Marion; L. P. Holbrook, Mt. Vernon; C. P. Dennis, Portsmouth; F. S. Maxwell, Steubenville; J. A. Stockton, Upper Sandusky; J. F. Dennis, Washington C. H.; Samu'l Wagner, Galion.

WHO IS HE?—There was a dentist in this city who deservedly had a reputation as one of the best, if not the best, in Ohio. He was looked upon as a man of integrity and as one who permitted his high idea of honor to materially reduce the profits he made from filling teeth and placing in false ones. In fact, he was considered a model man in every respect. In his business he needed many artificial teeth. He was accustomed to go, every once in a while, to a store where artificial teeth were sold. On entering he would ask to be shown different kinds of teeth, and when the teeth were brought out he would pick them up one at a time and examine them closely. When he saw one that seemed to please him he would place it in his mouth, and go on in that way until he had his mouth so full that he could hardly talk. Then he would remove them one at a time and place them back in the box whence they came, and with a pleasant "Thank you" would leave the store, without making any purchase. No suspicion was entertained that all was not right, or that he was not perfectly "square," but after he had come in with great frequency, and had made no purchases, there was curiosity as to the place of purchase of his artificial teeth, and one clerk had the temerity to insinuate that the old dentist was not square, and propose that a watch be placed on him when he next came in. This suggestion was at first thought to be preposterous, but the chief resolved, nevertheless, to have a watch placed on the old man. In a day or two the aged and respected dentist entered the shop, and asked to be shown some artificial teeth. The proprietor himself waited upon him. As the old gentleman would put a tooth in his mouth the proprietor would remember it, and, finally, when the almost revered old dentist had put them down in the display boxes, and had made his usual apology for not making a purchase, the proprietor counted those put down and discovered that one out of every five was missing. When his rascality had been discovered and made known to the old dentist, he broke down, cried, offered to send a check to cover the amount he had stolen, and that done, his errors were forgiven, and a promise was made that nothing would be said of it, but it leaked out, as such things do, and now, for the first time, is published. When the old man sees this he will recognize the story.—*Cin. Com. Gazette.*

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CONTRIBUTIONS.

DIAGNOSIS.*

BY J. R. BELL, D.D.S., CLEVELAND, O.

THERE are things which we do daily that we know why and how to do, which, if we were called upon for an explanation, would find ourselves deficient in language to express, and this, gentlemen, is the feeling we have in imparting our ideas upon the subject of Diagnosis.

We have heard of men, "of whom it is said," could tell all and even more than they knew; and others, who knew more than they could tell; we beg to be classed with the latter in this one instance, at least.

Diagnosis, the art of science of signs or symptoms, by which one disease is distinguished from another. The definition covers such a scope, even in the abnormal conditions with which we have to deal, that we make no effort to surround it, but only present our art of discerning symptoms of various affections most common in our speciality. There are stages of symptoms in and

* Read before the Northern Ohio Dental Society, Cleveland, May, 1892.

remote from the organs with which we have to treat, which make it (until the disease develops) impossible to safely pronounce the same, therefore, a reserved opinion is advisable, but as it is how we distinguish, and not what we should or should not do with a case, that we are to talk about, we proceed; but first allow us to take advantage of the opportunity to say that correct diagnosis is the foundation principle upon which success depends. Then our pathology, sanitary laws, hygiene, etc., are merely accompaniments to this. Then our intuitive vision, which is capable of knowing without education, or reasoning, fits us for action, but exclude judgment and education, and man can act only mechanically or by comparison. Now let us talk about some of the important affections indicated in the irritation of first dentition, together with inflammation, disposition disturbed, rise of temperature, thirst, and if relief is not afforded, diarrhœa and convulsions. In abnormal dentition the same symptoms, with more tense, shining gums, more fever with skin eruptions.

Convulsions of Dentition.—Premonitory symptoms, are changeable temper, unusual luster of the eyes, indifference to take food, twitching of facial muscles, biting of teeth, when paroxysms are indicated face will turn red or purple, stiffening of the body, respiration suspended, unconsciousness, protrusion of tongue, rapid intermittent pulse.

Inflammation of the peridental membrane is demonstrated by uneasiness and fullness, at first relief is described by occlusion of teeth, in the chronic form pressure causes dull pain, tooth is raised in its socket and meets the opposing teeth in advance of all others, slightly loosened, indicating plainly a thickening membrane. The gum margin is a high color, but there are often exceptions to this rule, in tissue, more easily broken down from diathesis, more of course will be found involved in proportion to diathesis affection, time, etc. In subjects of this nature we learn to anticipate, if inflammation does not yield to treatment, either ulceration or alveolar abscess.

In modified symptoms of this affection, intermittent pain, tooth gradually becomes less of a fixture, indicating detachment of peridental membrane by engorged and broken down blood vessels. Continued symptoms indicate either local or systemic disturbances. If allowed to progress, devitalization of pulp will naturally occur.

To locate peridental inflammation on teeth of one or more roots, gentle pressure applied at different angles will usually cause slight pain and show the disease to be upon the side from which the pressure is produced.

Alveolar Abscess.—At first patient will explain having had pain constantly. Then increased by each pulsation, from a varied length of time, say two or three days, a sense of swelling over diseased root, later if the tissues break down more rapidly than the system absorbs the pus and carries it off, there will be a pointing and discharge, at which time the above symptoms become less pronounced, and are soon unnoticed. During the development and until relief is obtained, there are usually constitutional symptoms, offensive breath, rise in temperature, thirst, headache, and foul tongue. Throbbing pain denotes pus formation.

In Chronic Form.—The above symptoms become less pronounced, and the discharge of a small quantity of pus, either coming from the mouth of the fistula, or can be made to escape by pressure upon the neck of the sinus.

To ascertain the origin of an elastic fluctuating swelling on any part of the face or neck, draw the fingers gently to, from the terminus of the swelling and the tooth indicating the cause, when pain will be produced by strangulation of blood and pressure upon nerves through the vessels associated, and if there is a blind abscess the desired effect will be obtained by changing position of disorganized blood or pus.

The indications of an abscess threatening to point externally, are understood by red, shining, distended skin, thin and scaly surface from which epidermis may be peeled off.

Abscess or disease of antrum is considered the most difficult to diagnose of any disease with which we have to deal, this is true only in imagination, for when the anatomy of the face and the frequent communication of the roots of the teeth and this cavity are understood, together with the symptoms that follow with variation of course, the diagnosis is simple.

The quantity of pus and pain is intermittent, according to the normal or depleted state of the general system. Constitutional disturbance is one of the strongest proofs, and if not visible should be inquired into. Cheek will be found hot, slightly swollen, with frequent sharp pains which increase in proportion

to above symptoms, until the pain becomes of a throbbing character and may produce rigors and fever peculiar to suppuration. The molar teeth on the affected side described as elongated from depression, which may prevent proper occlusion, the palate instead of being concave becomes convex. The nostril becomes encroached upon, and the floor of the orbit sometimes pushed up in such a way as to partially force the eye from its socket, viz., in protracted cases, and the eyesight may become affected by stretching the optic nerve, about this stage of the disease, either the effects of "blood poisoning" will appear, or some sinus discovered through which the pus can escape, either into the nose, through the floor of the antrum, around the necks of the teeth, or it may be found first discharging into the eye, or through the cheek. When if the fistula is large enough to afford free escape of the pus, the pain will cease until the cavity fills again.

Alveolar ulceration may be distinguished by purulent matter oozing out around the necks of the affected tooth or teeth, or through the gum. In regular abscess, new tissue is constantly being formed, while in ulceration normal tissue is continually being disorganized. We will find a watery discharge, translucent, and oftentimes odorless, while in case of an abscess, the discharge is opaque and generally offensive. We find too but little pain or swelling in ulceration, this is the most dangerous form of disease with which we have to combat, because of the possibility of the ulcer becoming malignant, and the liability of its poisoning the operator or his succeeding patients for want of thorough antiseptic condition of both hands and instruments.

In its chronic form we know that the alveolus and pericementum adjacent to the disease is being slowly carried off, and we may naturally expect calcareous deposits upon the roots of teeth not yielding kindly to treatment.

Necrosed alveolus is clearly understood when the gum is dark purple and the discharge is offensive, gums soft, bleed at the slightest touch, and appear loose from the bone beneath.

Mercurial Salivation.—In a mild form we find simply a red margin of the gum, which very soon, however, becomes soft and tender to pressure, then, too, there is always the metallic taste described, and the fetor of the breath. In more marked cases of poisoning, the saliva becomes profuse, and the patient has diffi-

culty in controlling it. The metallic taste, soreness, stiffness of the jaws, increase in proportion. In this stage sloughing of the gums will commence.

Syphilitic Ulcers.—The whole gum surface is red and swollen, with ulcerated margins, often exposing the necks of the teeth; although they may not be found loosened as in other inflammatory conditions there is usually a bloody discharge from the gum margins. We should readily understand these symptoms, because of the danger of contagion and transmission.

Scrofula.—We find it more marked in young subjects, and although there are exceptions, there is always a tendency, and it is a pretty sure sign of scrofulous diathesis, where the lymphatic glands are found enlarged, this sign together with more or less skin eruptions, are unmistakable characteristics of scrofula.

Tumor of the upper jaw is generally indicated by a gradually increasing prominence of the cheek, many times involves nostril and mouth, and closes the eye.

A malignant tumor of the jaws is almost invariably of rapid growth, which is hard, invades surrounding tissues, with a tendency to fungate like mushrooms.

There are two kinds of Cysts, called Dentigerous.—This word is derived from the two Latin words, “dens,” a tooth, and “gero,” to carry, to bear. First, those found upon the roots of well developed teeth; second, those more frequently connected with unerupted or imperfectly developed teeth, and they are common to either jaw. There is disfigurement, a sense of weight and contraction of affected parts, frequently constitutional disturbance. *Heath* in speaking of the clinical history of cysts connected with the teeth, describes them as painless expansion of the alveolus of either jaw, but more frequently of the upper, with crackling of the bone on pressure, and the ultimate absorption of the same.

In the one feature of his diagnosis we differ, viz: in the absence of pain. A cyst, he says, when distended presents a bluish appearance, and when very large gives distinct fluctuation.

An unerupted or impacted tooth is indicated by a hard tumor like growth over the alveolar ridge, frequently “if on the upper jaw” extending along the plane of the palate bone, on the surface of the maxilla, and in the shape of corresponding tooth.

Necrosis or death of jaw bone is similar in its first stages to

peridontitis, but later there is a vast difference; we find the gum thickened, tumid, and very red, with pus oozing from the borders around the teeth, with recession of the same.

Hypertrophy of the gums is found mostly among two classes, who are extremes in habit; one, seldom if ever brush or pick their teeth; the other, "clean theirs" and produce the above affection through ignorance, by the use of tooth powder, advised and sold to the victim by dentist or druggist.

"Where there's a penny to be gained, its unwise to truthfully advise."

Pardon our divergence from the subject. The temptation was too great for us to refrain from expressing our indignation for this injurious practice of advising powder as a dentifrice.

We distinguish hypertrophy readily. The gums are dark color, and increase so as to partially or fully cover the teeth; accompanying these symptoms are disagreeable breath and increase of saliva.

Alveolar Pyorrhoea.—The symptoms approximate those of syphilis, mercurial salivation or hypertrophy, it is distinguished from other affections by extreme sensitiveness of gums, which have either a polished glossy-like surface, or knotty and rough. In simple form there is merely a congested appearance of the gum, but in its chronic state, teeth are loose from gum margins in which pockets are formed, and a wasting away of the alveolar processes; later the only attachment is a tough ligamentous connection from a portion of the root, which seems to strengthen by use of the tooth, but later gives away altogether unless local systemic, and preventive means are adopted.

Irritation of the Dental Pulp.—Like general nervous irritation, we must look to causes arising from organs affected by other disease, and so on through a chain of troubles, very remote oftentimes from the one in which the greatest pain has finally settled.

If the general health is impaired through sickness, excessive sedentary labor, lack of nutrition, gestation, lactation, anæmic, or climatic condition, the cause and effect should be noted and our actions governed accordingly.

Sex, age, temperament, diathesis and habit, separately and collectively, demand careful but necessarily only a passing glance to determine the possibilities in cases of this and other similar affections as they come under our care. In simple irritation the

first sensation is consciousness or an unnatural feeling in some of the teeth upon the affected side, the person himself, and we too are puzzled to locate it carefully at first, as the pain becomes of a boring or gnawing character, disturbing mastication and rest, it becomes acute, then the separate organ is singled out, but neighboring teeth will also be disturbed sympathetically. When this stage arrives the pain in the tooth becomes very distinct, others are unnoticed, except at intervals when there will be a remission, then it may recur instantly, and especially when the person assumes a recumbent position. We are doubtful if the pulp can be prevented, from devitalization when this stage is reached.

Chronic inflammation of the dental pulp, is distinguished from irritation and acute form, because the pain is more wandering, like neuralgia, and is excited by changes of temperature, especially from dry to wet, and is also of an intermittant character.

A fungus growth on the pulp, is like a small vascular tumor, but there are exceptions, when it may be found as large as a navy bean. Its diagnosis is of little consequence as the entire pulp has to be destroyed, and usually that, together with the filling of the tooth, is simple.

Diagnosis of ossification of the pulp is difficult, but is important and should be distinguished from other affections producing symptoms nearly in common, because different means are necessary to accomplish the desired end. The pain is like that of a wound healing by first intention, there is commonly a gnawing sensation, causing consciousness that some tooth on the affected side is not right. It may affect the side of the head or face, but severe pain is not constant. The affected tooth remains natural in color and free from soreness for days, and even weeks in some instances, until it is pronounced a nuisance. Again we find partial ossification in carious teeth in which there has been no disturbance.

We find ossification of the pulp in the youth of old age, viz: in the neighborhood of the 50th year, when from abrasion of the teeth and ossification of the pulp they either require crowns or gold screws and tips, then it is necessary to determine their vitality. Heat a blunt instrument to a degree just endurable upon the finger nail, now quickly apply to the tooth in question, when there will be a response by a demonstration of consciousness or complete insensibility.

Dentine abnormally sensitive or so much as to require treatment preparatory to permanent restoration, is indicated by general debility of the system, white chalky or leathery disintegration, susceptible to thermal change, vitiated saliva showing acid reaction, gum margins irritated from white pasty deposit, want of use but showing absence of care and nourishment.

Abrasion of the teeth is first indicated by a polished, glassy-like occluding surface, in the more advanced stage the crown of the tooth becomes concave showing the form of the pulp-chamber which is itself partially calcified.

In dental exostosis the symptoms are very like those we meet with in ossification of the pulp, continued, however, the character of the trouble is distinguished, because of the prominence on the plane of the alveolar ridge.

Defects of Tooth Structure.—Anomalies of this character were formerly denominated atrophy, but it does not apply, from the fact, that these defects so often seen are from faulty formation of structure and not a wasting after eruption. In examination of these defects their character, progression, and the age, and the teeth in which they are found, suggest not only methods for restoration, but the time the disturbance was present. For instance, the spots, grooves or pits, in any class of teeth, denotes lack of proper nourishment through disease one or two years prior to its eruption. Example: 6 year molar 4 to 5 years; incisors 6th or 7th, and so on.

In syphilitic teeth the cutting edges are notched, cuspids are like pegs usually dark color and soft consistence.

Mr. Milner Fothergill says, "There is but little doubt but that the configuration of the teeth in gout has a distinct value." The peculiar characteristics are always pronounced. The teeth are short and thick, with heavy shoulders upon the lingual side, with encircling grooves which give the teeth a step-like appearance. The gums are light and thin and retracted. The center of the tooth is dark color.

Many cases of atrophied teeth are the result of severe whooping cough. The enamel will be found soft and the dentine oftentimes greenish color.

Puberty affect, while not a disease, retards the growth and quality of the unerupted teeth, third molars suffer.

Nasal catarrh of which our climate is conducive to produce,

causes defects in the development of the teeth. White spots are signs by which we distinguish this class.

Measles or Measles tooth are teeth usually centrals with exfoliation of tooth germs, eroded edge, vertical grooved, teeth are thin and narrow.

The Malaria Tooth.—If this term is allowed, is soft, rough, with spongy gums inclined to inflammation.

Rheumatic teeth are hard, flinty, checked edges, yellow, and firmly planted.

Scrofula.—The teeth in subjects so affected have soft enamel, pinkish, muddy opaque color, difficult to diagnose them for syphilitic teeth.

DISCUSSION.

DR. F. S. WHITSLAR: In opening the discussion of the subject of Dr. Bell's paper, I shall not attempt to notice all the points presented. Diagnosis may be general or special, and comprises the distinction of different diseases one from another. It may be based upon their essential nature or pathology, or upon those groups of symptoms that are classed as separate diseases by nosological arrangement. Diagnosis may, in other words, be either to determine the intimate nature and seat of a disease, or to fix its place in some classification by a convenient artificial name. Pathology, while of great importance, does not form the sole basis in forming a diagnosis. Observation clinical experience arranged and interpreted by pathological and statistical science are prime factors in forming a correct diagnosis. *General* diagnosis comprehends the distinction between the elements or principles of disease; for example, between nervous irritation and structural derangement, or between congestion and inflammation. *Special* diagnosis, on the other hand, relates to the distinction of diseases according to their chief seat where they have one, or otherwise according to some specific difference. Special diagnosis may, therefore, be called a branch of special pathology, and should be aided by an accurate and practical nosological arrangement. Now while ours is a specialty, we frequently have cases presented where the acquired information as well as the judgment of the practitioner is most severely tested, cases that seem to demand the aid of every department of medical knowledge to form a correct diagnosis. Let me give one or two examples.

True facial neuralgia involving the fifth pair of nerves, the symptoms are pain characterized as wandering, creeping, boring, lancinating, shooting, quivering, tearing, rending, gnawing. Again, a diseased condition found more frequently in cleanly mouths well cared for, than in mouths neglected. This disease involving the gums, caries of the alveolus, and the alveolar dental membrane in a peculiarly destructive process without the ordinary indications of inflammatory action in the surrounding tissues, wholly unlike pyorrhœa alveolaris and deep-seated ulceration, and also unlike the ordinary surface ulceration. It is characterized by making progress in a straight line from the margin of the gum to the apex of the root, destroying all the tissues covering the root, without any tendency to spread laterally, unless encouraged by other causes operating to inflame the gums. From the margin of the gum, and leading toward the end of the end of the root, is seen a row of beaded tumefactions or fungi, doubling upon itself as it returns from the apex of the root to the margin of the gum, leaving a clear exposure of the root between the rows of tumefactions. Phagedenic ulceration, which signifies a gnawing, eating ulcer. I wish to note an error in the paper, viz., calling an abscess the result of ulceration; the reverse is true, deep seated ulceration results usually from the breaking up of a chronic abscess. An abscess has a soft tissue membrane forming a sac, lining the pus cavity in the bone and containing the pus; ulceration in the same locality has no such lining of the pus cavity. Abscess involves none of the surrounding tissues in suppurative disease. Ulceration involves all contiguous structure. An abscess voids pus through a formed tube; ulceration through one or several patings through the overlying issues. I cannot close my part in the discussion of the subject of the paper, without calling attention to the use of the electrical currents both the galvanic and faradic as a means of diagnosis in obscure cases of the vitality or non-vitality of the dental pulp. In the more obscure cases, however, the faradic is superior to the galvanic, for if there is the slightest vitality remaining in the pulp it will demonstrate it at once by causing a response in the tooth. It is superior in this respect to the transmission of light by the electric mouth lamp, for many times when the condition is on the border-line between the life and death of the pulp, the electric light fails to demonstrate the condition. Finally, this is

a very important subject. To err in diagnosis is to fail in prognosis. And last though not least, diagnose your patient.

DR. W. H. WHITSLAR: Dr. Bell's paper is replete with suggestions and advice. Diagnosis is the primitive step in the treatment of disease. We all have cases that whilst signs and symptoms are clear yet these results are averse to our liking. A case in my practice proved the infallibility we are all prone to. It is seldom that we speak of our failures, but I mention this case to note the seriousness of our calling when it takes us into the obscure and uncertain mysteries of nature.

A gentleman past middle life came with history of severe inflammation in the antrum of Highmore, even giving the sign of discharge from nostril upon the side affected. The affection began with a sharp twinge as of a chill, so to speak, in the parts. It was expedient to remove the second bicuspid for the purpose of entering the antrum. An effort was made to enter the cavity, but on account of pain produced submission of the patient was not long enough to complete the drilling. Another hour appointed proved the determined resistance of the patient and no results. About the same symptoms as first noted. Patient then consulted several physicians with various treatments, and ten days elapsed when patient called again. A different aspect of the case was presented. In the hands of a surgeon he had submitted to a long deep incision from the posterior part of the hard palate to the incisor teeth. It was an ugly cut and presented an ugly appearance having become much swollen. I suspected malignancy. Patient talked of going to New York to see an eminent surgeon. A few days afterward I saw the gentleman the last time upon this earth. The ugly cut was uglier and very angry looking. The swollen lip of the wound upon the one side extended nearly across the oral cavity. I told the gentleman that I believed his only safeguard was removal of the superior maxillary bone. He decided to go to New York and did so. While there Prof. Bryant removed the superior maxilla. The case was wonderfully malignant and six months afterward he was dead. Such cases, gentlemen, tend to make us exceedingly careful and perhaps timid, but with knowledge *only* diagnosis is rendered.

DR. S. B. DEWEY: The essayist gave no sign to distinguish between alveolar abscess proper and an abscess within the alveo-

lus. He speaks of alveolar abscess being in different situations on the root. True alveolar abscess is caused by the escape of septic matter from the pulp chamber into the apical space, therefore it must have its seat at that point, no matter where the fistula may open. We may have an abscess within the alveolus at any point caused by a bruise or other injury. Again, he uses the term ulcerated teeth in connection with alveolar abscess, with him the difference being one of degree. We admit this term ulceration is often used wrongfully, as the writer has used it, and is misleading. We do not properly have ulcerated teeth. An ulcer is on the surface of a tissue, while an abscess is within the tissues. He failed to give us any way of diagnosing between peridental inflammation and inflammation of the pulp. The peridental membrane being the organ of touch of the tooth, any inflammation of that organ would make it responsive to touch in different degrees, according to the lesion whether it be slight or great. The pulp responds to the thermal changes only. Heat and cold are its diagnostic points.

Deposits in the dental pulp are very difficult to diagnose, sometimes impossible. These deposits may be of different kinds. They may be within the pulp tissue or of the pulp tissue. If within the pulp tissue, they may remain for years without trouble. When of the pulp tissue they are associated with degeneration, and must sooner or later result in complete destruction of the pulp by obliteration. This may be partial or complete, according to the rapidity of the deposit. Three things or conditions are necessary for these deposits, viz: albumen and lime salts in solution and an excess of carbonic acid. Now when we have had an intense hyperaemic condition of the pulp we may reasonably suspect deposits, because in a hyperaemic state of tissue we have this condition of the blood favoring deposits. The abraded teeth are not the only ones affected. Sound teeth may become in a state of degeneration of the pulp, and the pulp may be obliterated without giving any trouble. Diagnosis: Light of the electric mouth lamp.

"KNOCK 'EM OUT!"

BY H. G. HUSTED, OBERLIN, O.

ABOUT the middle of April, my brother-in-law who is a missionary at Pekin, China, returned to this country after an absence of eleven years. Both of his upper laterals and right central incisors were in a very unsightly condition, having decayed and broken off nearly to the gums; two of them having amalgam fillings covering the end of the root, but no attempt being made to build up the crown. This work was done by a Chinaman who had picked up a few ideas of dentistry and who was by resorted to as better than nothing.

On the 21st of April I commenced operations. Supposing of course from the extent of decay that the nerves were dead, I commenced to drill out the old fillings, to open up the nerve canals preparatory to mounting Logan crowns on the roots, but to my great surprise I found a live nerve, and upon careful examination discovered that all three of them were alive, the crowns being so nearly gone there was no chance to put in arsenic paste and get a proper gutta-percha stopping over it. Having decided that the Logan crown was the proper crown to use, I was at a loss to know how best to proceed. Having occasion to call on a competitor (by the way we are the best of friends and always ready to exchange ideas) I told him of my perplexity, and he suggested that I try "knocking 'em out," a procedure he had seen while in a dental college. I was rather startled at the suggestion of such heroic treatment, but upon further consideration concluded to try it. I at once proceeded to the operation by first cutting away as much as possible of the dentine, directly over the nerve, even to a slight exposure, then taking a piece of very hard and well seasoned wood, about the size of an ordinary lead pencil and three or four inches long. I sharpened it to a long point. I placed the point directly over the nerve and in line with the root, and with my Jennings' mallet hid it a sharp blow sufficient to break down the thin covering of dentine. I had sharpened the wood to too fine a point, the resistance of the dentine had battered up the point, and although it had done the work and that almost painlessly, it had not left

the nerve in as good condition to remove as those following. I at once removed the devitalized nerve with a broach. In the two other cases I sharpened the stick about as one would sharpen a lead pencil to a long point, the end being cut squarely across and strong enough to resist the blow with battering up over. The point had entered the canal not to exceed one-twelfth of an inch and had been effective with but a slight twinge of pain, not enough to cause the patient to show any signs of suffering. The nerve was not mangled at all, but came away whole by the use of a broach. I was filled with surprise at the success of the operation. I had hesitated for a minute or two, mallet in hand, before striking the blow, fearful of the consequences, but it proved to be perfectly satisfactory both to myself and my patient. The roots were prepared and crowns mounted at the same sitting; there was a slight soreness in one of them the following day, but no trouble whatever has arisen since.

THE AMERICAN DENTAL ASSOCIATION.

[Special report for OHIO JOURNAL.]

THE meeting was held at the Casino, Niagara Falls, Aug. 2 to 5, 1892.

The meeting was called to order by President Walker, and opened with prayer by Rev. Mr. Bacon, of Niagara Falls.

After the reports of officers and some other miscellaneous business, the President read his address an abstract of which is as follows:

THE PRESIDENT'S ADDRESS, W. W. WALKER, D.D.S.

After congratulating the profession on the advance made by it during the year past, the address drew attention to the coming meeting of the World's Columbian Dental Congress, and predicted a great advance to be made during the coming year in expectation of this event. The address urged that every member of the profession do all in his power to further the interests of this meeting in a professional as well as a scientific way, and as the estimate expense of the Congress would probably reach \$30,000, he urged a general co-operation in a financial way.

In regard to dental education and legislation, the address recommends the granting of diplomas from colleges only where

the final examinations have been held by the regular State Examining Boards, and that then the diplomas of the various colleges could be recognized and accepted in the various states without question.

It was also desirable to adopt some plan for bringing the local and national societies into closer relationship, and the suggestion is made that a synopsis of all papers read at local societies should be referred to the proper section of the American Dental Association, which should be the custodian, and from these reports a report by the Secretary of each section could be made each year that would represent the progress of the profession. The suggestion is also made that the Association could prepare a list of subjects which could be sent out and be discussed in various societies, and these discussions, when collected and sifted would result in large additions to our knowledge.

The report suggests that only a business meeting be held next year, as the Columbian World's Dental Congress will probably absorb all the time of the members.

Before closing the address the President called attention to the death of Dr. John Allen, one of the oldest and widest known members of the profession.

REPORT OF THE COMMITTEE ON PRESIDENT'S ADDRESS.

The committee reported as follows:

Recognizing the importance of the World's Columbian Congress at Chicago in 1893, we recommend that an appropriation of \$500 be made from the funds of this Association to the treasury of the World's Dental Congress. The Southern Dental Association has already made a similar appropriation.

In regard to dental education and legislation your committee respectfully report that they are of the opinion that the State Examining Boards should be appointed by the Governor of each State upon the recommendation of the members of the various State and local societies; and we believe that all such matters should be managed in each State by the State Dental Society, which should practically embrace the whole reputable profession of the State. This we also regard as the principal factor in securing the best laws and their proper enforcement, the most competent Board, the much desired inter-State, county and general recognition of State licenses.

In regard to the formation of a committee on State and local organizations, we would offer the following resolutions :

That a Standing Committee, composed of three members, shall be appointed originally for the terms of one, two and three years respectively, and that all vacancies due to expiration of the term thereafter shall be filled for the term of three years. All vacancies occurring from any other cause shall be filled for the unexpired term.

The basis of the plan and scope of work of said committee, and its duties in relation thereto, shall be suggestions as set forth in the address of the President; also the articles from which he quotes and in harmony with the circular letters issued by the Chairman of the Executive Committee.

In regard to the meeting of the Association for next year, we offer the following resolution :

Resolved, That the annual meeting of this Association for 1893 be convened at the time and for the purpose suggested in the President's Address, and that the consideration of the report of the Special Committee embodying certain proposed amendments to the Constitution and By-Laws, be laid over for consideration at that meeting.

We also recommend that the matter of the death of Dr. John Allen be referred to the Committee on Necrology for appropriate action.

Respectfully submitted,

EDWARD C. KIRK,
L. D. SHEPARD,
J. N. CROUSE.

REPORT OF SECTION VII.—ANATOMY, PATHOLOGY AND SURGERY.

BY TRUMAN W. BROPHY, M.D., D.D.S.

This report consisted of an enumeration of a large number of contributions to medical and dental literature on the subjects of this section, which have appeared or been published during the past year.

The chairman also reported the following papers to be read at this meeting :

"Report of a Case in Practice of Pyorrhœa Alveolaris," by J. E. Cravens, D.D.S. "A New Operation for the ex-Section of the Inferior Dental Nerve," by M. H. Cryer, M.D. "The Grind-

ing Teeth of the Herbivorous Mammalia," by A. H. Thompson.
"A Study of the Molar Teeth of the Proboscidi-ans," by W. C. Barrett, M.D., D.D.S.

PYORRHOEA ALVEOLARIS—A CASE IN PRACTICE.

Reported by J. E. Cravens, D.D.S., Indianapolis.

Patient, male, aged 50 years, apparently in good health, except catarrhal affection of nose and throat.

Diagnosis—Gums red and angry looking, bleeding easily and freely, considerable pus about incisors, and gum festoons swollen and of violet color. Patient complained of heat and prickling pains in the teeth specified above; well defined pockets on the approximal surfaces, some of which were notably profound.

The treatment consisted in the thorough removal of the incrustations, and trimming the affected alveolar margins. The pockets were then thoroughly washed with hot water and an application of a ten per cent. solution of commercial sulphuric acid made. The patient was directed to use powdered sulphur as a dentifrice morning and evening and avoid the use of soap and alkaline mouth-washes. This treatment was continued for three days, at which time there was no material change in the condition except a little less congestion.

The treatment was then changed. The pockets were washed clean with hot water as before and a ten per cent. solution of nitrate of silver was substituted for the sulphuric acid. After twenty-four hours there was a marked change for the better in the appearance of the gums and an appreciable diminution in the quantity of pus discharged.

This treatment was continued for four days and resulted in complete suppression of the discharge of pus, the congestion had all disappeared, and the pockets had evidently filled up by adhesion.

The essayist thinks the cure a good and permanent one. There was no painful or deleterious effect caused by the use of the nitrate of silver solution at any time. He attributes the cure to the use of the hot water and the astringent and antiseptic effect of the silver nitrate. The preliminary surgical treatment and also the detergent effect of the sulphuric acid were valuable factors in the rapid and satisfactory termination of the treatment.

DISCUSSION.

DR. W. C. BARRETT said there seemed to be no disease that came within the province of the dentist that called for so much thought, study and careful investigation as pyorrhœa alveolaris. He said that we have had but few cases of failure recorded in societies and elsewhere, yet our own cases were almost invariably failures. As to whether the cause of the disease was local or constitutional was not yet determined, but he had not been satisfied with any treatment he had yet tried, and he had tried about everything that had been recommended.

By local treatment he had been able to retard or arrest the progress of the disease, but had not been able to effect a radical cure. He could recall cases that had been under his care for years and years. Some of these cases would appear to be coming under control; the pockets would become almost filled with granulations and a cure seemed certain when much to his dismay he would find the whole thing breaking down again and a speedy return of the disease. The remedy Dr. Cravens had employed was a cauterant and there was no therapeutic effect further than the cauterizing. From the case healing so rapidly it appeared to him that it was a case with local manifestations and it was a question in his mind whether there would not be a return of the disease in three or six months. It will be interesting to watch the case and determine whether the result will be permanent or only temporary.

DR. M. L. RHEIN said it seemed to him that the case cited was not one of true pyorrhœa alveolaris, but perhaps had its origin more in the lack of due attention to the mouth. The essayist says that he thought the patient was in fairly good health. It is important to know the exact state of a patient's health and the only way to determine this fully is by an examination, both physical and chemical. The examination of the urin is important. In regard to the etiology of the disease he thinks that it is either a sequence of some constitutional disturbance or that disturbance is present at the time. If it be from disturbance of a disease that is hard to cure, as phthisis, etc., the pyorrhœa is hard, if not impossible to cure; on the other hand if it be from disturbance of a disease that can be eradicated then a cure of the pyorrhœa may be effected. Many cases have passed through his

hands that had not been cured and from the condition of the system he knew that it was a hopeless task to undertake it. A thorough examination of the patient is therefore essential and if disease be found it will assist us in our prognosis of the case and usually determine for us whether the case can be cured or not by the character of the disturbing disease whether it be one curable or incurable.

DR. W. H. MORGAN thought that the disease was largely inherited. He has had patients where the disease seems to run through the entire family from the father and mother to the children of ten and twelve years of age. He did not know as he had ever permanently cured a case but he believed that the treatment should be mostly constitutional with perhaps radical local treatment. He further stated that the gentlemen seemed to think that it was an incurable disease. He said it was an error for every case could be cured and permanently too; extract the teeth and nature will do the rest. (Laughter.)

DR. A. W. HARLAN said there is no objection to the use of sulphuric acid in the strength indicated by the essayist as preliminary treatment. It is not strong enough to do harm. In the commercial acid there is 13% of sulphuric acid and 87% of water; to obtain the strength indicated this is still further reduced ten times so that it is too weak to do any harm to the teeth or soft tissues. Dilute sulphuric acid acts much better than the aromatic sulphuric acid, for the aromatic sulphuric acid will not dissolve the calcareous or serumal deposits from the teeth while dilute sulphuric acid will. Dr. Harlan dilutes the acid with cinnamon water instead of water. He said that nitrate of silver was used in various conditions, as antral disease, etc., but not in so strong a solution as 10% for it is a powerful astringent and stimulant. Hot water is good as a therapeutic agent and something the majority of dentists fail to utilize. He said it seemed hardly possible that a cure of pyorrhœa could be effected in ten days. If the pockets were half the length of the root, as indicated by the reader, you could hardly get a formation of new tissue in that time. In his opinion pyorrhœa alveolaris is a purely local disease with many constitutional manifestations which are concomitant with and not the cause of the disease.

THE GRINDING TEETH OF THE HERBIVOROUS MAMMALIA,

BY A. H. THOMPSON, D.D.S.

The paper drew notice to the apparently promiscuous arrangement of enamel, dentine and cementum in the hoofed quadrupeds and vegetable feeders, and to the fact that the arrangement exhibits the highest degree of specialization found in dentition. This arrangement, seemingly without regularity, is uniform in species, but differs with families, hence the value of a knowledge of difference in forms for identification of species. The Ruminants furnish the best examples of the high degree of specialization. There are marked differences in the fissures and deep markings of the different genera of Ruminants, the goat, sheep, antelope, ox, deer, elk, giraffe and camel. The hog, hippopotamus, horse and rhinoceros also vary markedly in size and form of the crowns. The proboscidiens have a peculiar transverse marking, as the mastodon and elephant. The rodentia also exhibit a special transverse marking of alternate enamel and dentine. The molar teeth of the higher mammalia have by a process of evolution from simple types become organs of beauty and mechanical efficiency. The mechanical effects of use have been the principal factors in the development of tooth forms. The variation in food and consequent variation in the movements of the jaw to produce effective mastication has brought that change in the form of the glenoid cavity and condyl of the jaw. The simple up and down motion of the jaw has been changed to the lateral forward and back, and a combination of all as in man. This necessitates a special arrangement of dental tissues. The character of the food supply is the great influence which has produced this wonderful modification and specialization in the grinding or molar teeth.

A BRIEF STUDY OF THE TEETH OF THE PROBOSCIDIENS, BY W. C. BARRETT, M.D., D.D.S.

The paper referred to the manifest entire loss of any preserved specimens of extinct species through the lack of chances of preservation by sudden upheavals or other incidents in the formation of the earth in the earlier periods which would encapule and so preserve them for our edification. But in the pachyderms, as they now exist or have existed in comparatively modern times, modifications can be traced which are a sure indication of the gradual development of certain species through the

lapse of cycles of time. Families, whose dental development seem to be widely separated, on close inspection are found to be close congeners. For instance, there is a distinct relation between the dentition of the topir, with its forty-two teeth, and the elephant, with only six. The paper described the manner of the formation of the molar teeth of the elephant, the deposition of the various tissues, and models were shown to illustrate this development, the distribution of tissues being such as to, by wear, prepare the best possible masticating surface. The manner in which these teeth are worn out, cast off and replaced by their successors throughout the entire life of the animal, was described and illustrated. These teeth are erupted in such a way as to best economize the tooth material and furnish the animal with a satisfactory dental organ for a long period. The time of eruption, the number of plates forming the crown, and the duration of each successive tooth, was shown to be regular and systematic, the first molar having a fewest number of plates and the least number of years, there being a gradual increase in each succeeding tooth of both plates and years of life. There are abnormalities in the development of the incisors or tusks, due, probably, to accident to the alveolar process. The celebrated elephant "Jumbo" had had two molars in each jaw fully erupted, and none of the visible teeth occupied their normal positions. The probable reason why the two molars were present at the same time was due to the fact that the animal had always been in captivity and been fed on food free from gritty or wearing material, and the first tooth was not used up in time to be cast off before the full time for the emergence of its successor. This is the opinion of Prof. Flower of the British Museum. But Dr. Barrett thinks it due to some accident to the formative germs of the teeth.

NEW OPERATION FOR THE RESECTION OF THE INFERIOR DENTAL NERVE,
BY DR. M. H. CRYER.

This operation he described as consisting in cutting out the bones below the sigmoid notch until the opening of the inferior dental nerve is reached, the nerve is then drawn out as far as possible from the inferior dental canal and severed. It is then cut as far up as possible toward the base of the brain.

In discussing Dr. Cryer's paper Drs. Morrison, Fillebrowne, Brophy and others said they preferred operating from the inside of the mouth.

(To be continued.)

EIGHTEENTH ANNUAL SESSION OF THE MISSISSIPPI
STATE DENTAL ASSOCIATION.

Continued from page 431.

DR. W. E. WALKER, Bay St. Louis, read a paper on "Practical Anæsthetics." A synopsis follows:

He spoke of the dental profession as being eminently humanitarian, that while called upon to relieve pain, or to give prophylactic treatment, yet, in the very nature of the case, in many of the operations to be performed pain is an inevitable factor, except by the employment of the preventive means found in the judicious use of anæsthetics. After briefly reviewing the evidence of the use of anæsthetics or hypnotic agents by the ancients, and the discovery of modern anæsthetics, that proud boast of the dental profession. Dr. Walker spoke first of hypnotism as an anæsthetic agent. He said if the half that is told be true, we would seem to have in hypnotism a valuable adjunct to dental practice. If without any interference with pulse or respiration, such complete insensibility to pain can be induced by the will of the operator, that the severest and most painful tests can be applied to the unconscious patient, why not extract teeth or operate upon the dental pulp? The *Dental Review* in July, 1890, republished from the *Medical News* the report of an interesting trial of hypnotism as an anæsthetic agent, employed by Milne Bramwell in the presence of sixty medical practitioners and dentists. Among other painless operations three teeth were extracted for one woman and sixteen stumps removed for another, the latter not even experiencing any subsequent soreness of the gums or mouth. At a meeting of the Chicago Anæsthetic Club in October, 1890, Prof. Prof. Anderson, of Denmark, lectured on this subject and gave a number of severe tests.

At a subsequent meeting of the same club Prof. Norman J. Roberts gave a clinic with hypnotic demonstrations before an audience of physicians and dentists, among whom were mentioned Drs. L. P. Haskell, John S. Marshall, J. J. R. Patrick and others well known to the dentists of Mississippi. Many severe tests were applied, respiration and pulse remaining normal, as tested by a physician present. Prof. Roberts predicts that hypnotism will

within a few years take the place of ether and chloroform, specialists being employed to hypnotise patients for all operations when anæsthesia is desired.

Dr. Walker said that he would confine his paper to the consideration especially of local anæsthetics; first—because the operations the dentist is most frequently called upon to perform are not such as would either *require* or *justify* the use of general anæsthetics, and not only because of the risks and inconveniences attending their exhibition, but also because of the frequent impracticability of securing proper antecedent conditions of the patient, and secondly, because the operation for which an anæsthetic is most frequently demanded—that of extraction of teeth—is so often for transient patients with whose constitutional idiosyncracies and organal peculiarities we are not familiar.

In the treatment of *sensitive dentine*, Dr. Walker relies upon warm air gently applied, with encouraging sympathetic words and with gentle firmness. Herbst's obtundent—a saturated solution of cocaine hydrochlorate in chemically pure sulphuric acid, to which solution sulphuric ether is added to the point of saturation, often gives very satisfactory results. The application of ether spray causes pain quite as severe as the excavation of the cavity. Excellent results are claimed for the combination of 10 parts chloroform, 15 parts ether, 1 part menthol, used in the hand atomizer. He also quoted Dr. Geo. Earne's instructions: "Put on the dam, secure perfect dryness by using warm air, and apply cocaine dissolved in chloroform in a 10 per cent. solution." Also Dr. Littig's formula: "A saturated solution of cocaine in glycerine," as being worthy of trial.

For the *removal of the pulp* with little or no pain, Dr. Walker has used successfully Dr. A. W. Harlan's preparation, a solution of 10 grs. hydrochlorate of cocaine in 90 minims of sulphuric ether, left in contact with the pulp for five minutes.

For the *extraction of teeth* Dr. Walker early adopted the use of cocaine. To secure a reliable aqueous solution he adopted the plan of having a number of small vials, each containing such a definite quantity by weight of hydrochlorate of cocaine crystals that the addition of distilled water, up to a file mark on the vial at the time of using, gave 10 drops of a fresh 4 per cent. solution without any delay or uncertainty. This, however, he said, was obviated by the introduction of Park, Davis & Co.'s hypoder-

mic tablets, one of which dissolved in 10 drops of water gives as much of the 4 per cent. solution as it is advisable to use "above the shoulders."

After citing a number of authorities on the use and risks of cocaine and antidotes, and relating some incidents in practice, Dr. Walker spoke of his experience with the following formula, given to the dental profession about a year ago by L. C. Wasson, of Topeka, Kansas, through the Kansas State Dental Association. Dr. Wasson had received it from Dr. Guibor, a specialist in the treatment of diseases of the nose and throat:

Cocaine hydrochlorato	gr 20
Sulphate of Atropia	gr 1-10
Carbolic acid crystals	gr 10
Chloral hydrate	gr 5
Aqu pura add	one oz.

Although the maximum hypodermic dose of this preparation, two syringes full, or 60 minims, for extensive operations, contains 2 3-10 gr. cocaine, the hypodermic dose being $\frac{1}{4}$ to 1 gr., the whole making a 2.5 per cent. solution of cocaine, yet it is so combined with antidotal and localizing agents that its use is much less objectionable than cocaine alone, in a 2 per cent. or a 4 per cent. solution in much smaller quantity.

Of the other elements Dr. Wasson says, (1) "atropia in small doses, as given in hypodermic injections from this preparation is a cardiac, respiratory and spinal stimulant, which tends to counteract the toxic effects of the cocaine; (2) carbolic acid aids the chloral in localizing the anæsthesia, and both tends to increase the anæsthetic properties of the cocaine, and localize its effects, while (3) both aid in the preservation of the solution, which is, in itself, quite desirable, as the ordinary cocaine mixture is almost worthless at the end of a week, while this preparation is good for months." Dr. Walker said that he had used this preparation very extensively for hypodermic injections in the gum tissue for the past eight months, and had found it more satisfactory than anything he had used, especially for teeth extraction. Though he had been very cautious in his previous experience with cocaine, never to inject more than $\frac{1}{4}$ gr., yet he frequently found it necessary to use the proper antidotes to combat toxic symptoms; yet with this preparation, though he frequently injected 30 minims, containing from 1 to 1 1-6 gr. cocaine, he had not had one case

requiring any antidote, and only three cases of very slight systematic effects, scarcely worthy of the name. These three cases he described in detail. He cautioned, however, as to one unpleasant feature sometimes attending the injection; where the quantity injected is very large and the gum tissue very dense and unyielding, slough may follow, confined, however, strictly to the area subjected to pressure. He had had three cases of this nature, only one of which threatened to become serious. The superior central incisors being very badly decayed, it was necessary, in using a Perry Separator, to press severely and high up on the gum; this caused so much pain that the injection was resorted to with very satisfactory results at the time. The operation was rendered painless, but a slough supervened which, being posterior to the incisors on the median line, threatened possible rupture of the anterior palatine vessels with probably severe hemorrhages. Fortunately it did not extend so deep, and healed without any serious results.

In conclusion, Dr. Walker regretted that he had not been able to carry out his intention of experimenting with cocaine phenate as a local anæsthetic. According to Merck's Bulletin, "its practical insolubility in water is a physical property most favorable to its therapeutic action, as it cannot be readily washed away from its site of application by the lymph currents. Its local action is therefore more intense and prolonged. In consequence of its insolubility very small doses have effect, while, on the other hand, excessively large doses ($15\frac{1}{2}$ gr.) are not prone to produce toxic symptoms; this makes it of value in topical applications—as by the brush—where the dosage cannot be regulated with exactness."

In a private letter received from Merck's Laboratory since reading the above paper: Dr. Walker is further informed that the percentage of cocaine alkaloid in cocaine phenate is about 75 per cent. That it is soluble in alcohol of from 30 to 50 per cent., and that as an anæsthetic in dental operations it produces complete topical anæsthesia without subsequent derangement of the general system. An alcoholic solution containing 1 part of the drug in 1250 of alcohol was the form employed.

Dr. Brownrigg, practicing physician of Columbus, being requested to open the discussion, said that he felt diffident in speaking on the specialty of dentistry, a profession whose labors

add to the longevity of race; but that in the able and interesting paper to which he had listened with pleasure, he noticed that ether had been omitted, and he wished to enter a plea in its behalf. He hoped they would investigate its merits as an anæsthetic and try it. That chloroform was very objectionable, many of the great hospitals having repudiated its use. But he considered sulphuric ether entirely harmless; it could be used with perfect safety. He had employed it largely for twenty-seven years, and almost exclusively for nineteen years. Full anæsthesia is not necessary in minor operations, analgesia is all that is necessary. Operations in dentistry are of such an awakening nature that the patient awakes readily, and there is no subsequent trouble from blood in the mouth. The very short time required to produce analgesia with ether should make it popular with dentists when time is very valuable. Cocaine is undoubtedly valuable, but it has its risks and dangers, while ether is absolutely harmless.

Dr. Walker stated that he had not included ether nor any other general anæsthetic in his paper which he had purposely limited to local anæsthetics as being practicable and all-sufficient for the average minor operations of the dental surgeon.

Mr. Foster, in charge of the Dental Exhibit from the S. S. White Atlanta Depot, asked the privilege of the floor that he might speak of the merits of chloride of ethyl as a local anæsthetic.

Dr. Westmoreland stated that Dr. James, a local physician, was an expert in the art of hypnotism, and would give a clinic the following day.

Dr. W. H. Marshall (Oxford), had used chloride of ethyl to a limited extent, but found that it would not keep in a temperature above 60°. Had been able to excavate the most sensitive dentine painlessly, also found $\frac{1}{2}$ tube sufficient for painless extraction.

Dr. R. R. Freeman wished to take exception to the idea expressed in the paper that dentists were not as fully acquainted with the constitutional idiosyncracies of their patients as the physician. It should always be remembered that dentists introduced anæsthesia, and we should uphold the honor of our profession. He was glad that ether had been spoken of; that he both used and liked it, but did not class it as absolutely harmless.

Nature gives pain as a protection, and he wants the extraction of teeth to be painful as a safe-guard against its ruthless practice. Though he does not employ the subtle force of hypnotism, yet he believes the dentist may show such force of character and power of command, that the patient will yield to the inevitable; some might perhaps call it hypnotism. Any person can anæsthetize himself by rapid breathing or rather blowing; when a patient will do this for a few minutes, the smallest amount of ether in a very few inhalations will suffice for the extraction of even four or five teeth. But in its use we should impress upon our patients that we are taking into our hands an agent that requires extreme care. "Beware how you handle it." He said that he would withsand the temptation of all the gold of Ophir rather than permit the use of chloroform in his office. He regarded the use of nitrous oxide gas as similar in effect to plunging a persons head in a bucket till on the vetge of drowning, and then extracting his teeth—only there was no water to pump out! But the appearance of the person in either case would be equally repulsive. His experience with cocaine had been such that he did not want any more of it; it excites hysteria and other evil influences. Pure water, or even "make believe," is enough if you have control over the mind of the patient.

Dr. Walker said that he hoped he was not generally so misunderstood as that he would belittle his profession. He had the highest possible opinion of the attainments of dentists, and was far from denying them the privilege of administering general anæsthetics, but there were too many preliminary requirements; we would often have to send them home for looser garments; we must have a third party present, and this was not always convenient. As to not understanding the constitution, etc., of our patients, the patients whom we do understand, and who are under our care, are not as a rule those for whom we extract teeth; we generally save their teeth. But those for whom we do the most extracting are "transients" whom we have perhaps never seen before, and may never see again.

Prof. Peabody wished to go on record as saying that no systemic anæsthetic known to-day is absolutely free from danger; whether it be ether, chloroform, nitrous oxide gas or cocaine. If Dr. Freeman was capable of producing anæsthesia with rapid breathing and sulphuric ether in one, two, or three minutes, he

must have sufficiently strong powers of hypnotism to make them believe he was operating painlessly. He had used sulphuric ether for the extraction of teeth, but he had known cases where he had used half a pint of ether, and taken thirty minutes to do it, without producing sufficient anæsthetic effect to operate painlessly. With the various temperaments and idiosyncracies of individuals different effects are produced upon different people, and on a stranger no one can say what the effect will be. The most skilled physicians cannot. With the known average of one death in 1000 from chloroform, one in 10,000 from ether, and one in 100,000 from nitrous oxide, we are not justified in resorting to them for minor operations. There is a well-known case where a lady had been under her physician's care for fifteen years; he had safely administered chloroform to her sixteen times, the seventeenth time she died from it. It is true that in the sixteen times when it had been administered safely, she was prone upon a table, while the seventeenth time she was reclining in a chair; but that is where our patients usually are. "No sum of money would induce me to allow it used in my office, though I would use it for the extraction of teeth at the patient's residence with the physician present." As to rapid breathing, he considered it one of the most trying experiences he had ever undergone, and he doubted if any person could breathe one hundred times in a minute. Nitrous oxide gas acts by asphyxiation, it cuts off the nerves of sensation. If a person will draw in a long breath four or five times, and then fill the lungs to their fullest capacity and hold their breath, the most sensitive cavities can be excavated. For the extraction of teeth, the patient may hold the breath till the critical moment, but then the inevitable *cough* will expel the breath, and the effect is lost. So-called "Christian Science" is nothing but fanaticism; it is not christian, it is not scientific; it is the old story of the influence of mind over matter. The subject of anæsthesia is one of the greatest interest. It should be generally known that, notwithstanding the report of the Commission of Hyderabad, India, that we are liable with chloroform to have paralysis of the cardiac muscles, that sulphuric ether affects both the heart and respiration; that nitrous oxide gas is an asphyxiating agent. If cocaine is used, have ammonia and nitrite of amyl at hand. In Europe the use of these things is denied to the dental surgeon, they are not considered capable of

understanding these things, even though endowed with the same amount of brains as the general surgeon; perhaps it is thought that there is something in the study of dentistry that renders the brain torpid! But, whether physician or dentist, the use of these agents is never unattended with danger, and therefore each one should thoroughly familiarize himself with the action of each.

Dr. Walker said that he was much gratified that his paper had called out these criticisms and this discussion, as it has been said that "it takes a good paper to call out a good discussion."

But we must bear in mind that accidents, sometimes fatal, occur even at the hands of physicians who have known their patients all their lives. Our own patients whom we know as well, want their teeth saved. For "transients" there is less risk in a local anæsthetic, which with less time, less trouble and less inconvenience, fills all the needs of the occasion.

On motion of Dr. R. K. Luckie (Holly Springs), the discussion was closed and the subject passed.

(To be continued.)

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.

DEPARTMENT OF MEDICINE—GENERAL DIVISION OF DENTAL AND ORAL SURGERY—PRELIMINARY ADDRESS OF THE COMMITTEE ON A DENTAL CONGRESS.

It is the aim of the World's Columbian Exposition to gather together the evidences of the material progress and achievement of the civilization of the world, and so arrange them that every department of human endeavor may be studied and examined through all its various grades of development.

It is also their desire to represent the intellectual and scientific development and achievement of the entire civilized world by a series of great Congresses, to be held during the progress of the Exposition.

In pursuance of this object the World's Congress Auxiliary was organized by the World's Columbian Exposition, and it has received the recognition and support of the government of the United States.

It is the plan of the World's Congress Auxiliary to bring into communication, through these Congresses, the best thinkers and workers in every department of knowledge, including Religion, Science, Philosophy, Literature, Art, Agriculture, Trade and Labor, etc., and by the presentation and interchange of ideas, methods, theories and practical experi-

ences to promote the advancement of all that is noblest and best of our present civilization.

Committees have therefore been appointed to organize a series of Congresses, representing nearly every field of thought, and of speculative and practical endeavor.

In the field of professional achievement, Medicine and Surgery, in their various special applications, will form a very large and interesting feature of the work of the World's Congress Auxiliary.

Dentistry is an important part of Medical Science, and an outgrowth of our modern civilization. Its present perfection is in considerable degree due to the thought and labor of American minds.

The history of modern dentistry is covered by a period of less than two generations, and yet it has advanced from the rude operations practiced by the blacksmiths and barbers to one of the most scientific and exact of the specialties of the healing art.

Scientific Dentistry had its birth in the United States of America. This country has the proud distinction of having organized the first school for the teaching of dental science, and the establishment of the first periodical journal devoted to dentistry, while very many of the most useful appliances and scientific methods have originated on this side of the Atlantic.

It is therefore eminently fitting that Dentistry be represented at the World's Columbian Exposition by a display of the progress which has been made in the development of its materials, instruments, appliances, processes and methods of a practical nature, and in scientific research, literature and professional education.

With this end in view the dentists of the United States took steps in August, 1890, to organize such a World's Congress, by the appointment of a General Executive Committee, to whom the whole matter of organizing and conducting the Congress was referred.

The work therefore of the Committee on Dental Congresses appointed by the World's Congress Auxiliary will be chiefly in co-operation with that General Executive Committee, in publishing to the world from time to time the progress of the work of organization, in promoting the interests of the Congress in every way within their power, and keeping it in harmony with the general plans of the World's Congress Auxiliary.

Every effort will be made to secure the best talent in the presentation of scientific subjects, and in practical demonstrations.

The World's Columbian Exposition, through its Directory, will provide ample accommodations for all the various World's Congresses to be held in Chicago in 1893. The Memorial Art Palace now in process of erection upon the shore of Lake Michigan, and located near the center

of the city, will be devoted to this purpose. This building will contain two large audience rooms, with a seating capacity of about three thousand each, which will be used for the general Congresses of the various departments, besides numerous smaller rooms, suitable for the Chapters and Sections of the Congresses, thus affording for the Dental Congress ample accommodations for clinical demonstrations of a suitable nature.

During the sessions of the Dental Congress several popular evening meetings will be held, to which the general public will be invited. At these meetings, which are intended to be educational, illustrated lectures will be delivered by some of the most eminent men of the profession upon topics which are deemed to be of vital importance to the public. These meetings will be especially under the control and management of the World's Congress Auxiliary. When the suggestions of the Advisory Councillors of the Dental Congress shall have been received as to the most interesting and vital questions to be presented, a programme will be arranged for publication.

A cordial invitation is extended to the dentists of the world to take part in the scientific work of the Congress by the presentation of papers and discussions, or demonstrations of new or improved methods and appliances.

America, and Chicago in particular, will have a hearty welcome for all who may come.

An earnest effort was made to bring the meeting of this Congress in close connection with others of the Department of Medicine, but that effort having proved unavailing, arrangements have been effected under which the meeting of the dental profession will be held on or near Aug. 17th, and is expected to continue during the week or ten days following. Definite dates and details will be given in the programme.

Communications in reference to the special work of the Congress should be addressed to Dr. A. O. Hunt, Secretary World's Columbian Dental Congress, Iowa City, Iowa, U. S. A.

Communications in reference to the general work of the World's Congress Auxiliary and suggestions from the Advisory Councillors may be addressed to the Chairman of the Committee.

DR. JOHN S. MARSHALL, *Chairman*,
No. 34 Washington Street, Chicago.

DR. A. W. HARLAN, *Vice-Chairman*.

Dr. G. V. Black,	Dr. C. N. Johnson,	Dr. George H. Cushing,
Dr. N. Nelson,	Dr. A. E. Baldwin,	Dr. A. W. Freeman,
Dr. E. S. Talbot,	Dr. George A. Christman.	

Committee of the World's Congress Auxiliary on a Dental Congress.

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DENTAL CONGRESS.

DR. HATTIE E. LAWRENCE, *Chairman*.

DR. MARIE T. BACON, *Vice Chairman*.

Dr. Emma Beanham,

Dr. Louise Peterson,

Dr. Rebecca McIntosh.

WORLD'S CONGRESS HEADQUARTERS, CHICAGO, JUNE, 1892.

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ON A DENTAL CONGRESS.

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COMPILATIONS.

ARGENTI NITRAS AS A REMEDY IN THE TREATMENT OF PYORRHOEA.*

BY DR. E. H. STEBBINS, SHELburnE FALLS, MASS.

THE value of remedial agents depends largely upon their continued good effects. Agents that are widely diluted or wasted by the fluids of the mouth are necessarily evanescent in their effects, and must be frequently applied in severe cases. No one remedy is best in all conditions. A splint that is sufficient to hold in place an infant's broken arm is wholly inadequate for a man's broken leg.

* Read at a meeting of the New York Odontological Society, May 17, 1892.

It is not the purpose of this paper to discuss remedies for incipient or mild forms of pyorrhœa, but those cases where remedies have been ineffectual, and the disease has progressed till hope is nearly or entirely gone.

We recollect the late Dr. Riggs, of Hartford, and his treatment of pyorrhœa. His work in this line had a very good effect upon the profession in calling attention to the necessity of removing all and every particle of calcareous matter from the roots of teeth. Doubtless all of us can recall cases treated by him, or others, where the operations were performed as thoroughly as it seemed possible, and yet the deposit and accompanying pyorrhœa returned, and the same process must often be repeated.

How many patients have we to day whose gums give us and them more annoyance and solicitude than their teeth do? How exasperating to our pride when, in spite of all our efforts, we are obliged to let a highly-esteemed patient lose one after another of his or her teeth!

It is not claimed that argentri nitras will cure *all* cases. It will not raise the dead. The long-continued good results of this agent in treatment of pyorrhœa of the gums is probably due to the compound formed by it and the organic substance of the cementum, This product being a powerful germicide, and held in close proximity to the diseased portion, is a perpetual and deadly foe to the microbes.

For the effects of the salts upon tooth-substances reference may be made to my paper published in the *International Dental Journal*, October, 1891, and in the *OHIO JOURNAL OF DENTAL SCIENCE*, March, 1892.

The first effect of an application of the salts to purulent gums is to turn them to a whitish color. The cauterized portion will slough in a day or two, leaving the remainder in a healthy condition. Cases where a slight pressure against the gums produced copious discharges of pus about the teeth have been treated once, and in a few days the whole appearance of the parts was found to have been changed, and to sustain hard pressure without causing any discharge of pus. Instead of the soft, fluctuating condition of the gingival border, the gums have presented a hard and apparently healthy condition. Where the teeth are very loose they become more firm in their sockets. Patients express with much satisfaction their appreciation of the results, and say their teeth and gums "feel so much better."

How long do the results last?

Case III., page 666, *International Dental Journal*, October, 1891, has been under my observation since the first treatment. It is safe to say that since then the calcareous deposit has not been five per cent. of what it was before. Occasionally it has been necessary to retouch some places where the black crust has been worn off by his artificial denture, or some other cause. Recently gingivitis appeared by three teeth in different parts of the mouth. Upon pressure pus exuded. Some tartar was removed from deep down on the roots of the teeth, and the salts applied. Pyorrhœa and inflammation soon ceased.

Case IV., page 667, *International Dental Journal*, has recently had tartar begin to deposit on the inferior incisors and the gum by them to be inflamed. This case has been over four years without any treatment. Other parts of the gum aside from that just mentioned are in very good condition, and there has been no deposit of tartar compared with what there was before treatment.

Other cases might be related, but they would only confirm those given. No case has come under my observation that did not yield gratifying results.

MANNER OF TREATMENT.

Remove all calcareous deposits from the teeth. (If any one has not extracted a tooth immediately after cleaning it, let him do so, and see how ineffectually the tartar has been removed.) With a slender wood point carry small quantities of the *pulverized* salts down beside the roots of the teeth till every exposed part thereof is touched as well as every portion of diseased gum. Make the application to but a few teeth at a time, so as to be able to keep the spreading of the dissolved salts under control. Keep the mouth as free from saliva as convenient. As soon as a few teeth have been treated inject water freely to carry away the surplus dissolved salts. Then proceed with a few more in the same manner until all are treated. Of course, care should be exercised to protect all other parts of the mouth. Care and skill should enable any operator to avoid touching the salts on the patient, or himself, where they are not needed. The use of paper napkins or pieces of cloth to wipe the patient's mouth will save staining other napkins.

It is a source of regret to me that it is impracticable to have a patient here to illustrate the subject under consideration. Inasmuch as there are patients present to show results of treatment for decay, I will give an account of a case which is of peculiar interest to me.

A young lady (not vigorous in health or constitution) consulted me in 1885 about the feasibility of saving her teeth. Some of them were filled, others were decayed. She had been advised to have nothing done till it should be necessary to have them all extracted. She was in a dilemma, but accepted my counsel and kept her teeth. All but seven of them have been filled. In April 1886, I discovered quite a groove of decay in the central incisors, extending from the angle of labial and mesial surfaces across the mesial surfaces and around to near the middle of the palatal surfaces. The gum nearly covered these grooves. I applied the salts at once. In January, 1889, the left one had begun to decay a little further along on the palatal surface, and was retouched with the salts. No other symptoms of decay have appeared,—more than six years.

A little girl has just been to my office whose teeth I have treated. Over two years ago the distal surfaces of her first temporary molars and the mesial of the second ones were decayed. To save them till the time for them to be replaced by the bicuspid's it was necessary to fill or treat them with the nitrate. The latter was done, and they have been preserved, and will be till it is time to extract them, and that without filling. She has had other teeth treated that have resulted as favorably. The little boy of the same family has been as fortunate in this respect as the girl. The parents and children are very much pleased by the results.

My observations confirm my confidence in the efficacy of this agent. Sometimes I have treated large cavities with the salts, and at a subsequent sitting filled them with gutta percha or cement, without excavating.

Are there objections? Yes.

A lady said to me, "If folks only knew what it is, so they would not think it is dirty decay, it would not be objectionable." Divest the minds of Americans of prejudice, and a clean, healthy, dark spot on a tooth would be preferable to a patch of gold. Much credit is due practitioners who inveigh against such glitter-

ing displays of the shining metal in the mouths of our people. But there are thousands of cavities out of sight that can be just as well saved by this method as by filling. It so completely fills the requirements for some agents that are adapted to preserve the teeth of children,—little children, nervous, timid children,—that it commends itself to the careful consideration of every dentist.

There is no doubt (in my mind) but more than three-fourths—yes, ninety per cent.—of children's teeth that decay can be preserved their allotted time of life if the treatment is begun in season and faithfully followed up. If we charge for value of services rendered, why not get better fees for this than for filling, considering the time it takes? Who would not use nitrate of silver, if by any plausible means a fee of five or ten dollars could be charged for each cavity? I am prompted to say this by the questions so often asked me about fees for it.

When I observe incipient decay in the tooth of a patient I recommend nitrate of silver to arrest its further progress. My advice is usually accepted, and the results are in most instances very satisfactory. Many patients freely express their approval of the treatment. Many times patients freely ask me what it does. My reply is that "it kills, embalms, and entombs the microbes just where it finds them."—*International Journal*.

ALL SORTS.

ABSORBENT COTTON FILTERS shed broken fibers when introduced dry into the neck of the funnel. To obviate this first dip the mass of cotton into the liquid to be filtered.—*Odont. Jour.*

DEODORANT FOR IODOFORM.—Eight drops of ethereal oil of coriander, thoroughly mixed with a drachm of iodoform, is said to cover the odor of the latter.

IT IS OUR DUTY to tell our patients what our judgment convinces us is best for the future of the teeth; and, within reasonable limits, to insist upon having our advice acted upon. A professional man does not inspire confidence if he shows himself weak enough to yield too much to the uninstructed fears and suggestions of his patients.—DR. H. C. QUINBY.

THE EDGES OF A CAVITY should not be bevelled off, because it allows a thin overhanging edge of amalgam, which is likely to chip off, and thus produce a ledge in which food will most certainly collect.—T. W. BRYNE.

SUBSTITUTE FOR TINCTURE OF IODINE.—The *Prag. Rdsch.* recommends using vaseline oil in place of alcohol for the external application of iodine. The iodine, 3 to 5 per cent., is dissolved in ether and the ethereal solution added to the vaseline oil.

TEMPORARY CAPPING FOR EXPOSED PULPS.—

R Boric acid;
 White wax a a pts j;
 Oil sweet almonds;
 Paraffine a a pts ij.

—H. MILLING.

ANTIDOTE FOR HYDROCYANIC ACID.—PROF. KOBERT has proven experimentally that hydrogen peroxide is an antidote for hydrocyanic poisoning. It is to be given both by the mouth and hypodermatically until all symptoms subside, and the odor of the acid can no longer be recognized in the exhalations.—*Med. Bulletin.*

METHOD OF MENDING A CHECK IN A PORCELAIN TOOTH.—After working on a bridge about a week, I had it ready to solder, and in doing so I checked the tooth very badly. Of course no one is justified in using expensive words, but I think a dentist has a right to if any person has.

I was thinking what a nice time I would have making the bridge over again when Dr. Dorrance put an end to my thinking expensive thoughts by telling me he could fix it so I could not tell that it was ever checked. Needless to say my joy exceeded my sorrow, and he kept his part of the agreement.

The process is a very simple one.

He took the piece with the tooth attached and passed it through the flame of the Bunsen burner a few times, until it was warm (not hot), and immediately immersed it in linseed oil. This was repeated at intervals about five minutes for three times, and two hours later I would defy any person to detect a check in the tooth.—H. MILLING, *Dental Journal U. of M.*

QUESTION.—*Septum of gum between incisors much inflamed and bleeds easily. Gums about molars and bicuspidals are also red and angry looking, apparently about to recede. What can be done to arrest the trouble?*

Treat thoroughly with sulphuric acid and bicarb. soda, and prescribe equal parts of tincture of myrrh and cinchona, to be used once a day as a wash. Have patient brush teeth and gums four times a day, and repeat the sulphuric acid and bicarb. soda in four weeks, if necessary.—B. F. CARMICHAEL.

Remove all traces of calculus and dress the gum with:

R	Zinc chloridum	-	-	-	grs. x.
	Acid carbolie	-	-	-	gtt. xx.
	Glycerine	-	-	-	
	Aqua	-	-	-	aa ʒ ss.

Force the remedy well under the free edge of gums once or twice a day till improvement is manifested, then less frequently. Other treatment might be suggested.—W. S. ELLIOTT, D.D.S., M.D.

Inflammation of septum caused, no doubt, by roughness on the teeth—most common a deposit of calculus. Remove all roughness, polish teeth, and instruct patient to rub gums with a soft linen cloth, folded over the index finger. Use a soft brush for cleansing.—L. B. TORRENCE, D.D.S.

I imagine this condition due to local irritants. Pass a small scaling instrument carefully around and between the affected teeth to free from scales of calculus or other deposits; syringe freely with tepid salt water; inject listerine or iodide of zinc; apply tincture of iodine, and have the patient frequently dust the inflamed margins with powdered borax and tannic acid (mixed). Keep up this treatment for a reasonable length of time. Possibly you have a case of incipient pyorrhœa alveolaris.—CHARLES E. FRANCIS.

The circulation is obstructed, the gums glutted by a superabundance of blood producing inflammation and often suppuration. Negligence (the parent of pyorrhœa) and excessive use of tobacco are the two great causes of this condition. I have seen cases where the gums entirely covered the crowns of lower bicuspidals, speedily reduced to a normal condition and made well by the application of the "Robinson Improved Remedy" for pyorrhœa. Where I have a case of tobacco chewing, and the patient uses two pounds a week, I make them cut down the amount to one-

quarter of a pound and the gums can be restored perfectly.—
J. A. ROBINSON, *Item.s.*

MISCELLANEOUS FORMULAS.—The following formulas are copied from the *Chemist and Druggist* which states that they are from the "Recipe Book" in their possession, compiled by a distinguished London Perfumer.

The first one is a formula for quinine dentifrice which was formerly in the possession of a West end London chemist, who died 42 years ago. The dentifrice was a favorite one with the Queen and the late Prince Consort; and it has an association with Lord Byron, in so far as his daughter Ada, Countess of Lovelace, was in the habit of buying it, half a dozen of boxes at a time, "calling at the establishment where it was made in her carriage," says our chronicler. A fashionable dentist of a generation ago thought so much of the dentifrice that he had it put up in No. 14 turned wood boxes, and labeled with his own name, and there are many other honorable associations in connection with it. "Super," "Opt." and "Verum," are added to one or other of all the ingredients in the original recipe, but we prefer to give it on the understanding that only the best materials are to be used.

Quinine Dentifrice.—(As used by Her Majesty the Queen.)

Pulv. rad. iridis flor	-	-	-	12 ounces
Pulv. cretæ præcipitat	-	-	-	36 ounces
Pulv. os. sepia	-	-	-	3 ounces
Ol. rosæ virgin	-	-	-	80 drops
Quininæ sulphatis	-	-	-	3 drachms
Pulv. saponis hispan (fresh)	-	-	-	2 ounces
Ol. cinnamomi	-	-	-	75 drops

All the powders to be finely levigated and mixed in the above order, the oils being intimately mixed before passing the powder through a fine sieve three times.

Rhatany Dentifrice.—

Pulv. iridis flor	-	-	-	6 ounces
Pulv. os. sepia	-	-	-	6 ounces
Pulv. cretæ præcip	-	-	-	24 ounces
Pulv. krameria	-	-	-	9 ounces
Carmin	-	-	-	$\frac{1}{2}$ drachms
Beracis	-	-	-	3 drachms

Pulv. antimonialis	-	-	-	6 ounces
Ol. rosæ virgin	-	-	-	24 drops
Ol. neroli	-	-	-	16 drops
Ol. cedrat	-	-	-	8 drops
Ol. cinnamom	-	-	-	8 drops
Ol. caryoph	-	-	-	8 drops
Ol. lavend. ang	-	-	-	4 drops
Ol. pimentæ	-	-	-	4 drops
Tinct. myrrhæ	-	-	-	6 drachms
Extract violæ	-	-	-	6 drachms
Magnes. carb. powd	-	-	-	6 ounces

Mix well, and pass through a fine drum sieve 20 times.

Aromatic Dentifrice.—

Megnes. carbon. powd	-	-	-	7 ounces
Cretæ præcip	-	-	-	24 ounces
Pulv. iridis flor	-	-	-	4 ounces
Pulv. sapon. hispan. (fresh)	-	-	-	4 ounces
Carmin	-	-	-	20 grains
Ol. caryoph. ang	-	-	-	2 drachms
Ol. cinnam. ver	-	-	-	1 drachm
Ol. organi pallid	-	-	-	1 minim
Ol. geranii	-	-	-	1 drachm
Ol. rose virgin	-	-	-	1 drachm
Ess. moschi	-	-	-	1 drachm

Mix well and pass through a fine drum sieve several times.

French Dentifrice.—

Pulv. camphoræ	-	-	-	16 ounces
Cretæ præcipitat	-	-	-	5 pounds
Carmin	-	-	-	$\frac{1}{2}$ drachm
Ol. rosæ virgin	-	-	-	2 drachms

This should be passed through a fine drum sieve after being thoroughly mixed. To bring out the beautiful color the dentifrice should be passed through the sieve twenty times. It is an elegant preparation properly prepared.

Antiseptic Dentifrice.—

Pulv. rad. irid. flor	-	-	-	3 drachms
Pulv. glycyrrh. decort	-	-	-	2 drachms
Pulv. sapon. hispan. (fresh)	-	-	-	6 drachms
Cretæ præcipitat	-	-	-	1 ounce

Acid boracic	-	-	-	-	2 drachms
Acid benzoic	-	-	-	-	25 grains
Magnes. carb. pond. ad.	-	-	-	-	4 ounces
Ol. eucalypti	-	-	-	-	20 minims
Ol. rosæ virgin	-	-	-	-	5 minims
Ol. menth. pip. ang	-	-	-	-	5 minims
Ol. limonis	-	-	-	-	10 minims

Mix in the order written, and pass through a fine drum sieve. If desired colored, add 20 grains of carmine, which gives an elegant tint.

Dental Tincture of Myrrh.—

Macis. contus	-	-	-	-	50 grains
Myrrh. opt. cont	-	-	-	-	250 grains
Rad. krameria cont	-	-	-	-	250 grains
Glycerini	-	-	-	-	$\frac{1}{2}$ ounce
Sp. vin. rect	-	-	-	-	$\frac{1}{2}$ ounce

Macerate for fourteen days, shaking every day or every second day once during the day, then filter.

Directions: Half a teaspoonful in a wineglassful of water (tepid in winter) will be found a most effectual astringent wash for the teeth and gums. It should be used every night and in the morning.

HOLLOW CAST GOLD FILLINGS.—Prepare the cavity to be filled, in the usual manner, with the exception that you avoid all undercuts. Roll a piece of platinum as thin as the mill will make it, cut off a piece, say one-fourth or three-eighths inch square, and, after having thoroughly annealed it, lay it over the cavity, and, holding it firmly in position with the left hand, force a ball burnisher (or what is better, a ball of cotton formed on a bur in the engine) through the center of the platinum. The center will be torn, but this will enable you to adapt it to the walls of the cavity, however irregular the shape of the latter may be. Having satisfied yourself that the metal is snug against the margin on every side, take a pellet of very stiff wax (and taking the precaution to moisten the bottom of the cavity, should it be dry), force the wax into the tooth as you would a gutta-percha filling. Insert a sharp-pointed instrument in the wax and carefully lift the whole thing out. You will observe the wax prevents the matrix from changing shape, and at the same time gives you an

impression of the bottom of the cavity not covered by the platinum. You are now ready to invest in sand and plaster, or, what is better, Teague's investing compound.

Having melted the wax out with boiling water, mix a little of the investment, and, carrying it on a small point to the bottom of the mold, build it in the form of a cone. Lay in a sufficient quantity of scrap gold, cut fine, and fuse till level full. With a little trimming the filling is ready to be cemented in place, and finished off. Before inserting, it is better to make slight undercuts. If the operation is neatly performed, the cement line cannot be detected.—S. F. GILMORE, *Items*.

NEW PUBLICATIONS.

567 USEFUL HINTS FOR THE BUSY DENTIST, by W. H. Steele, D.D. S. Philadelphia: Wilmington Dental Mfg. Co. Publishers, 1892. Price, cloth, \$2.50.

The book, containing 281 pages, is made up principally of abstracts from the various dental and other publications. It contains, in the main, practical articles that the author has been culling for a number of years, and therefore furnishes a valuable book for reference to the dentist.

In his preface the author says: "My intention has been to furnish an answer as accurately, and with sufficient detail, in as compact and accessible a form as possible, to all questions and difficulties that may arise in our every-day life, at the chair or bench. When possible I have obtained this information from dental journals, or from personal correspondence with other dentists. Articles which I could not obtain from either of the above sources, I have tried to furnish from my own pen."

While the information it contains is valuable, the author has not been careful enough in the matter of credit to either authors or journals. Many places we notice the wrong journal credited with an article that was first published as original in some other publication, and in many other instances the author's name is entirely omitted in the book when it was given in full in the journal from which the article was taken. The book is neatly bound and on the whole, well worth the price to every dentist.

BOOK ON THE PHYSICIAN HIMSELF AND THINGS THAT CONCERN HIS REPUTATION AND SUCCESS, by D. W. Cathell, M. D. Philadelphia: F. A. Davis Co., Publishers, 1892. 335 pp. Price, cloth, \$2.

While this work has been written for the physician, it contains much

that is applicable to the dentist or other professional man. The hints and suggestions throughout the whole book are interesting and valuable, and if followed will without doubt cause the professional man to practice in a professional manner. The author has the happy faculty of expressing himself in a most interesting manner, and once begun there is little doubt but that this interesting book will be read from cover to cover.

In the present, the tenth edition, the entire work has been revised and considerable new matter, that greater experience of the author and further reflection have dictated, has been added. That the work has passed through ten editions in six years alone recommends it. It is well printed on good paper, and altogether is a very readable and enjoyable book.

BOOKS RECEIVED.

Modern Materia Medica, by H. Helbing, F.C.S. Third enlarged edition. New York: Lehn & Fink, Publishers, 1892. Price, \$1.00.

SOCIETIES.

WEST VIRGINIA STATE DENTAL SOCIETY.

THE first annual meeting of this society will be held at Wheeling, Wednesday, October 5. Members of the profession are cordially invited to be present.

H. H. HARRISON, President, Wheeling, W. Va.

GEO. I. KEENER, Secretary, Morgantown, W. Va.

MISSOURI STATE DENTAL ASSOCIATION.

THE twenty-seventh annual meeting of the Missouri State Dental Association was held at Clinton, Mo., July 5th to 8th inclusive. There were twenty-six new members admitted and eleven papers read.

The following is the list of officers and committees elected for the ensuing year:

President, J. D. Patterson, Kansas City; 1st Vice-President, W. E. Tucker, Springfield; 2d Vice-President, DeCoursey Lindsley, St. Louis; Cor. Sec'y., Wm. Conrad, St. Louis; Rec. Sec'y., H. A. Rubey, Clinton; Treasurer, Jas. A. Price, Weston.

Executive Committee—C. B. Hewitt, Kansas City; A. J. McDonald, Kansas City; J. E. Crozier, Lees Summit.

Board of Censors—E. E. Shattuck, Kansas City; H. A. Cress, Warrensburg; E. B. Crane, California.

Committee on Ethics—Frank Slater, Rich Hill; J. B. Newby, St. Louis; C. L. Hungerford, Kansas City.

Law—Jas. A. Price, Weston.

Committee on Publication—J. E. Crozier, Lees Summit; T. J. Frey, Moberly; C. L. Hickman, St. Louis.

Committee on New Appliances—C. L. Hungerford, Kansas City.

Supervisor of Clinics—C. H. Darby, St. Joe.

The next meeting of the Association will be held at Excelsior Springs, Mo., on the first Tuesday after July 4th, 1893.

WILLIAM CONRAD, *Cor. Sec'y.*,
St. Louis, Missouri.

CALIFORNIA STATE DENTAL ASSOCIATION.

At the twenty-third annual meeting held in San Francisco, July 19 to 22, 1892, the following officers were elected for the ensuing year:

President, W. Z. King, San Francisco; 1st Vice-President, L. A. Teague, San Francisco; 2nd Vice-President, I. W. Hays, Grass Valley; 3rd Vice-President, J. P. Parker, Santa Cruz; Recording Secretary, L. Van Orden, San Francisco; Corresponding Secretary, Chas. E. Post, San Francisco; Treasurer, T. N. Igchart, San Francisco.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

DIED.—Dr. D. W. Roudebush, of Covington, Ky., August 26, 1892, aged 71 years.

AN ALLOY of 78 per cent. gold and 22 per cent. aluminum is the most brilliant known.—*Scientific American*.

GREENE COUNTY, OHIO, has two villages, Cedarville and Yellow Springs, each with a dentist as mayor of the town.

IN medicine, simplicity is generally construed as hesitation, modesty as want of confidence and truth as impoliteness.

PLATINUM, it is said, has been discovered in the Southern Hills at a point about twenty-five miles west of Rapid City, S. D.

MANGANINE, the new alloy consisting of copper, nickel and manganese, is said to have a specific resistance higher than nickeline.

MORE THAN A FOURTH of the gold and more than a third of the silver produced the world in the year 1891 was mined in the United States.

AFTER all, science can scarcely explain the why of anything. It merely points out the order in which natural processes occur.—*Brit. Med. Jour.*

A RUSSIAN PHYSICIAN asserts that the pain of neuralgia, if superficial, can be relieved at one by throwing a beam of light, from a bright arc-light, upon the affected part.—*English paper.*

BAD FOR SIR EDWIN'S TEETH.—Sir Edwin Arnold in speaking of the cholera scare, says, the preventive he used in India with the best results, is five drops of hydrochloric acid in a cup of tea.

WHY SHE DOESN'T SMILE.—“Dora must have suffered some terrible disappointment. One never sees her smile now. What is the matter?”

“Two front teeth pulled.”—*Life.*

AN English firm has invented an ingenious device for turning on the currents for electric lamps at a certain hour. An ordinary clock is so adjusted that at the desired moment a spring is released, permitting a pair of pivoted contacts to fall into mercury cups, thus completing the circuit.

THE WORLD'S COLUMBIAN DENTAL CONGRESS, although the time of meeting is a year hence, seems to be already entangled in the meshes of political wire-pulling for office, regardless of the fitness of the candidate. It is to be hoped that the committee will rise above the lobbying of cliques and name men satisfactory to all concerned.

“AN OFFENSIVE BREATH can originate either from decayed teeth, a catarrhal condition of the nose and throat, a disordered stomach, or from the lodgment and decay of food in the crypts of enlarged tonsils. By seeking the cause first, and then removing it by suitable means you will bring about an almost certain cure.”—*Anon.*

OF TWO EVILS.—First Shipwrecked Yachtsman—It won't hold us both, Bill. I'll let go, and you save yourself.

Second Shipwrecked Yachtsman—But, man, you have a wife and family, and I haven't.

First Shipwrecked Yachtsman—Yes, I know; but I have an engagement with the dentist to-morrow, and I am satisfied. (Drops off the log.)—*Puck.*

A REVISED VERSION.—Man, born of woman, is of a few days and no teeth. And indeed it would be money in his pocket sometimes if he had less of either. As for his days, he wasteth one-third of them; and as for his teeth, he has convulsions when he eats them, and as the last one comes through, lo, the dentist is twisting the first one out, and the last end of that man's jaw is worse than the first, being full of porcelain and roof-plate, built to hold blackberry seeds.

THE BLUE-GUM NEGRO.—There has always been a superstition throughout the South that the bite of a “blue-gum negro” was as poisonous as that of a rattlesnake. While this has been the superstition there have been doubts about the existence of a “blue-gum negro.” Many people know of other people who have seen the so-called poisonous negro, but few have ever been found who have actually seen such a person.—*Daily paper.*

The blue-gum is as characteristic of the African or those of African descent, as is said to be the absence of the white spot at the base of their finger nails.—W. H. S.

MARRIED.—September 5th, 1892, Prof. D. E. Ewald, of Racine College, Wisconsin and Dr. Martha J. Robinson of Cleveland, Ohio. We understand they first met while attending the University of Michigan, both graduating the same year 1888—Prof. E. from the literary department and Miss R. from the dental. We extend congratulations and wish them every happiness and great prosperity. At the same time we cannot but regret the loss to the dental profession of such a promising member.

ARTIFICIAL INDIA RUBBER.—The manufacture of artificial india rubber has lately been protected by patent. The component parts of this composition are manilla gum, benzine, bitumen and resin oil. It is said that the product obtained from careful admixture and special treatment of these materials gives a substance which possesses all the elasticity, solidity and suppleness of the finest india rubber. It can, moreover, like the valuable product which it imitates, be vulcanized in the usual way.

ARTIFICIAL TEETH IN THE ESOPHAGUS.—Miss Josie Nelson, of Minneapolis, who was almost at the point of death owing to an obstruction that prevented her from swallowing anything but liquid food, was successfully operated upon at the Northwestern Hospital recently, and two teeth removed from the walls of the esophagus where they were firmly imbedded. Miss Nelson said that six years ago, while in a fit of laughter, she swallowed the two teeth, which were then attached to a rubber plate.—*Daily Paper*.

THE mines of the world produce twenty-five tons of gold every week, but the precious metal remains as rare as ever.

A cubic inch of gold is worth, in round numbers, \$210; a cubic foot, \$362,380, and a cubic yard, \$9,797,762, this on the basis of \$18 per ounce. At the beginning of the Christian era there was \$427,000,000 of gold in the world, but at the time of the discovery of America the total of the world's gold supply had been reduced to \$57,000,000. The amount of gold now in use is estimated as being worth \$10,000,000,000.

THEY SAY there are still some "popular" notions of doctoring in Southern Russia. The rural dentist places his patient upon a little stool and examines him. If an upper tooth is to be pulled he performs the operation with a simple pair of tongs like that used by cobblers. But if a lower tooth is to be extracted the operation is more complicated. The tooth is very skillfully tied with a violin string. The other end of the string is fastened to a hook in the ceiling. Then the stool is removed with a jerk from beneath the patient, who falls; his tooth, sometimes with the gum attached, remaining on the string.

INDUSTRIOUS ACTRESSES.—I read lately, in an advertisement of a new tooth-brush or tooth-polisher, a letter from a distinguished actress, who said that since she had tried the thing, some months ago, she had used it constantly. That is the usual formula for such recommendations. It doesn't do to say that you have tried a certain article and liked it; you must aver that you

have 'used it ever since,' whether it be a tooth brush, a patent medicine, a new kind of soap, a hair restorer, a tonic, or a cosmetic without any arsenic in it. When I think how many proprietary articles every popular actress has been delighted with, and used to the exclusion of all others of the kind, I am overcome with amazement at their industry. It must take several hours a day to put them to their various uses.—*"The Lounger," in the Critic.*

OIL OF EUCALYPTUS.—This oil has grown into such great demand in Europe that over 20,000 pounds were exported from California in 1891. A sketch of the rather remarkable history of this commodity is given in the *Independent*, which dates the beginning of the cultivation of the tree in California from 1869. In that year fifty acres, near Haywards; were planted, chiefly for lumber purposes. Since then enormous numbers of the tree have been planted. About ten years ago the discovery was made that a decoction of the leaves of eucalyptus had the property of removing the scales of incrustation from boilers. While the Engineers were preparing their anti-scale fluid they appeared to be cured of their ailments, such as bronchitis and asthma, and they started a factory or works for the extraction of the oil at San Lorenzo. From this as a beginning, a very considerable industry has sprung up.

THE SPOILS OF WAR.—The wife of a prominent physician of this city, wears on the third finger of her left hand, a gold ring, which has its little history. During the war, a party of soldiers entered an isolated house in Virginia. They were bent on finding some of the "spoils of war," but discovering nothing of value, they finally entered an upper room, empty save for an old lady in bed, who appeared to be sick. Turning to leave, one of the soldiers spied a set of false teeth on a gold plate in a glass of water. Hastily snatching them, he put them in his pocket, carried them through the war and home to Washington, had the gold plate made into a ring, presented it to the lady who afterward became his wife, and she still wears it."

"I wish she would not wear it," said a lady, speaking of it recently, "or, that it could be forgotten. I never see her but the vision of an old lady, deprived of what was no doubt necessary for her comfort, rises before me. I wish I did not know it."—JEAN'S Washington Letter, *Xenia Gazette*.

AN ACCOMMODATING DENTIST.—Not only barbers, but dentists as well, sometimes transgress the law in the matter of tooth-pulling. A case was recently brought to our attention, says the *Troy Press* where a healthy young woman was afflicted with the tooth-ache. She went to a dentist, not only to have the offending member removed, but all of her teeth, so as to prevent a recurrence of the pain, and get a false set. As her teeth were in excellent condition the dentist expostulated with her and refused to take the job. The foolish young woman, however, went to another dentist in good standing and he performed the work without a protest. If such a case were properly brought before the courts the greedy dentist could be convicted of malpractice, and the dental association of which he is a member would expel him in short order. A self-respecting dentist will not take advantage of the folly and ignorance of a patron by extracting sound teeth. Such butchery is a far more flagrant offense against humanity and the dental profession than the tooth-draw performed by the venturesome barber.

THE MAN WITH THE IRON JAW.—Prof. Karl Sauer, of Berlin, says: "The various circus performances of iron jaw development, whereby a man hanging from a trapeze holds another by a strap between his teeth, denotes such a powerful strength of the muscles of the jaws and neck, that to a layman such a feat seems little short of a miracle.

"But this demonstrates only to what extent the strength of the muscles of the jaw can be developed by corresponding exercise. It is not as difficult as it seems to find out the ordinary power of these muscles.

"A flat steel or iron band pierced at the end with two holes through which a piece of wire can be pulled serves for this purpose. The band is laid across the teeth of the lower jaw as far back as the corners of the mouth will permit. The weights are attached to the wire, and must touch the floor or table when the mouth is held open. The wires are taut, and the person making the experiment must stand perfectly erect.

"I found more than twenty years ago, while making a similar test, that the average weight which can be pulled up with the jaw, so that the lips will close, is fifty pounds. Persons who eat coarse food, hard, dry bread, etc., or those in the habit of cracking nuts with the teeth, acquire greater strength of the jaw than gourmands, who mince delicately prepared dishes."—*St. Louis Post Dispatch*.

THE BICYCLE IN MEDICINE.—Dr. W. H. Burr, of Wilmington, in *Merck's Bulletin*, observes concerning the treatment of tuberculosis that it is irrational to fill the patient with drugs, if no attempt is made to change the environment in which the disease was contracted. His system should be "flooded with oxygen" as a prime requisite to a reformed metabolism—while at the same time the excretory organs are not overlooked. "The bicycle" says Dr. Brown, "in my opinion is one of the most advantageous means of administering oxygen. The bicycle will digest more fat meat and starchy vegetables than any other means of exercise known." The late Dr. Frank H. Hamilton was fond of saying that "the best thing for the insides of a man is the outside of a horse," but he was of that generation, now nearly passed away, that was unacquainted with the wheel in its newer forms and those that are adapted to the open air occupation of invalids. Thousands of persons can have bicycles to whom the living steed is out of the question. And the proprietorship of a horse is not an unalloyed privilege, since too much exercise may be unavoidable through considerations affecting the servant animal, but the bicycle can be stopped and made to rest at the will of its owner. Dr. Burr concludes his observations by saying: "The latest theory in the treatment of tuberculosis is rest. I prefer to say: Action with rest—as the unpleasant necessary concomitant—but which should be gradually, steadily and progressively abridged." Mr. Gladstone is an ardent admirer of this most rational means physical betterment. He is reported to have said recently, in an interview: "I can only emphasize the fact, that I consider that physically, morally and socially, the benefit that cycling confers on the men of the present day are almost unbounded."

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CONTRIBUTIONS.

THE AMERICAN DENTAL ASSOCIATION.

Continued from page 477.

REPORT OF SECTION II.—DENTAL EDUCATION, LITERATURE AND
NOMENCLATURE.

BY LOUIS OTTOFY, D.D.S., CHICAGO.

Education.—There are 38 dental colleges now in existence, five of which were organized during the past year. 1483 students were graduated in 1892, the Philadelphia school leading with 148, the Meharry and German American having one each; 851 were graduated from ten colleges. The lengthening of the college course does not seem to have materially decreased the number of students entering dental colleges.

There are 130 local societies now in the United States, with a membership of 5,000; 24 of these societies were represented by delegates in this association last year.

The reading course in the post graduate course is now under way and much interest seems to be awakened in a two year's

reading course in dental anatomy and crown and bridge work. Other courses on dental science and art are to be provided in the near future.

Literature.—The dental periodicals show a marked improvement in the quality of the matter they contain. The Illinois Dental Society advises the establishment of a weekly dental journal, as the monthlies are too slow in getting the *news* to their readers; it was also here advocated that a quarterly journal, publishing only original matter for which \$5.00 per page had been paid, would meet with financial and professional support.

Permanent dental literature has been enriched by a revised edition of Harris' Dental Dictionary; a new edition of Sewill's Dental Surgery; the fourth edition of Gorgas' Dental Medicine; Charts of Typical Forms of Irregularities, by Eugene S. Talbot; a second edition of Black's Dental Anatomy; Catching's Compend for 1891, and last, a new work on Dental Jurisprudence, by Wm. F. Rehfuss, D.D.S., of Philadelphia.

In dental nomenclature there is no report to make.

REPORT OF SECTION III.—OPERATIVE DENTISTRY.

BY A. W. M'CANDLESS, OF CHICAGO.

During the year there have been published 60 articles, in different dental journals, on operative dentistry, mostly on filling materials and treatment of pulpless teeth. Only one article on conservative treatment of the pulp, indicating that this subject is not a popular one, or that the practice is not sufficiently successful to inspire any one to write about it. This is at variance with the report from this section last year. The efforts to get reports of local society transactions for this meeting failed to bring satisfactory responses, but it is hoped by more persistent pushing of this matter next year will meet with more definite and favorable replies.

Some progress seems to have been made in the application of agents for painless operations on the pulp.

The report mentions as new appliances and helps in operative work Dr. W. B. Ames' new oxyphosphate of copper, crystal mat gold, Dr. Keefe's improved rubber dam clamp, improved flexo files, apparatus for softening gutta percha, dento electric cautery, improved root dryer, cotton pellet roller, root trimmers,

Bosworth mallet, silver and platinum alloy, screw posts of and hand matrix for manipulating plastic fillings.

REPLANTING AND TRANSPLANTING TEETH, BY W. N. MORRISON, D.D.S.,
OF ST. LOUIS.

The essayist stated that of the cases reported to this Association in 1875-6, two of the replanted ones are still in the mouth, in good condition; one of them being in the mouth of a person with most unfavorable constitution.

The essayist claimed of the unfavorable comment of the profession in regard to this operation as calculated to hinder progress and to throw difficulties in the way of those who were practicing this operation with sufficient success to justify it. The essayist enumerated a number of successful operations, and although he experiences failures he believes the operation of sufficient durability to warrant its use in many instances where extraction and artificial substitution would be unsightly or undesirable.

One of the important elements of success in this operation is the attainment of absolute rest, or freedom from motion of the implanted teeth. This is accomplished best by a figure of eight suspensory copper wire ligature from the crowns of adjoining teeth over (or under, as the case may be), the cutting edge of the implanted tooth, also securing the ligature in position, and the interdental spaces with phosphate cement, and this is worn for six or eight weeks.

DISCUSSION.

DR. HEAD asked how many replanted teeth lasted five years.

DR. MORRISON: Not to exceed 20%.

DR. DARBY: An inquiry of this kind may be misleading to the younger members of our profession, by leading them to think that implanted teeth will last but a short time. I have seen many of these teeth that have done good service for six or seven years and are still in good condition. When Dr. Younger was east some years ago he implanted in one case four bicuspid and two central incisors. For about six years they did good service but finally one of the centrals was lost. Having the patient in charge I inserted a temporary plate, which was worn a few months, then I drilled a new socket and implanted another tooth. The tooth became firm after a few months' time and is firm to-day.

Altogether I have myself implanted thirty-six teeth, out of which I have had but five failures. Some of the teeth have now been in position four or five years. There are places where this operation is a valuable one, for instance to supply the space of a lost lateral or central incisor. If the tooth implanted lasts only four or five years it is worth the operation, and another can be implanted. I have engrafted artificial crowns on roots of teeth, and implanted when I could not find a natural tooth of the right shade. I hope the profession will not give up this valuable operation for there is certainly merit in it, and I for one should dislike to see it get a "black eye."

DR. W. H. MORGAN: Bony ankylosis was spoken of as one of the forms of attachment of implanted teeth; there is no such thing as bony ankylosis, it is the uniting of cartilage and I think the term is improperly applied. The tooth is held by encystment, cartilagenous or otherwise, but never by a bony union; the dead and living will not unite.

DR. L. OTTOFY said it was unfortunate that Dr. Younger when east had to implant teeth in all sorts of mouths, favorable and unfavorable alike. One great objection to the implantation of teeth is the scarcity of perfect teeth. I have lost several cases on account of checks, etc., in the implanted tooth. I almost invariably cut off the crown of the tooth, adjust a Logan crown on the root, using a layer of gold between root and crown for protection.

Some of the teeth I have implanted have been in the mouth for five years. Most of the first cases I tried were failures on account of not taking proper care in the selection of patients. On the other hand there is hardly a case where the patient was selected but is in good condition to-day. How long implanted teeth will last one cannot say further than judging from the past. Some of those implanted by Dr. Younger seven years ago are still firm. From what we know now I would say they would last from four to seven years.

MATRICES, BY J. E. CRAVENS, D.D.S., INDIANAPOLIS, IND.

He said: It is a test of an operator's judgment, sometimes, to determine whether he shall use a matrix or merely a support for his filling material. There is a wide difference.

* * * A matrix for filling should possess certain advan-

tages, such as thinness, for economy of space, close conformity to cavity margins, however irregular, sufficient malleability to enable the operator to bend and dilate at any part and to any extent desirable; it should be cheap enough to be thrown away after once used. * * * A writer in a dental journal declares that perfect gold filling cannot be done in matrices. I think him mistaken, for every cavity is a matrix so far as it affects the form of its contents, but from cases observed I am satisfied that failures may easily be made, and that an operator's confidence in matrices sometimes is abused because failures at obscure margins may not be discoverable until after the completion of the work. The usual fault with matrix filling consists in imperfect adaptation of the filling material at cervical and lateral margins. Gold cannot always be depended upon for perfect adaptation at these points unless in excess, and close matrices do not admit of excess. Dr. Cravens thinks a support, a piece of thin metal of a springy, non-malleable quality, placed between the teeth with no attempt at conformity to cavity margins, is preferable. The margins should stand free, particularly in filling with gold, so that an excess may occur and better adaptation be derived. He recommended the construction of matrices of German silver, bent and fitted to the curves of the gum in the same manner as fitting bands for gold crowns. A band closed with a lap joint next to the cheek and fastened with soft-solder may be dilated or bulged at any part, the metal yielding readily to moderately firm pressure so as to conform to an approximating tooth or give fullness at any point. Amalgam thus supported may be left several hours to harden, and often accommodate the dentist's demands. For gold plain shields will hold all the space required, and if a little more space should be required for finishing purposes it may be readily gained during the operation by driving the gold against the shield, thus actually wedging the teeth slightly apart.

DISCUSSION.

DR. J. A. SWASEY prefers a matrix made of brass. He does not want any obscure walls but wants to see every portion of the cavity. He said a man who does not wedge a tooth and fit a matrix so that he can see all portions of the cavity is not an operator. Making a cavity a simple one is the object of a matrix.

DR. McKELLOPS said the teeth must be separated so that the

operator can see every portion of the cavity. He does not think a good filling can be made if any of the walls are obscure. If a tooth is tender or sore from wedging, he uses separators to hold it firm, so that there is little or no discomfort from malleting. He thinks the object of every operator should be to relieve the patient of all pain possible.

DR. J. TAFT said there was a great difference in opinion regarding the use of the matrix. It was a useful article if properly used, but much faulty work was done with matrices. He uses the partial matrix, covering one-fourth, one-third or one-half of the cavity, where the cavity is such that he can see into it better by so doing. When he has filled nearly to the top of the matrix it is removed and the filling completed without one.

DR. W. H. MORGAN wished to challenge the idea that cavities could not be successfully filled unless all portions could be seen by the operator, for he had himself made successful fillings where only a portion of the cavity could be seen. He uses non-cohesive gold, testing its solidity by the touch.

DR. McKELLOPS said that pure gold was always cohesive; there was really no pure non-cohesive gold. He said of course a cavity could be prepared with the aid of the mouth mirror, but you cannot make the operation perfect unless you can see every portion of the cavity. At least, it takes a good man to do it.

DR. MORGAN, That is why I can do it. I can prove my assertions with any amount of specimens.

DR. JOHNSTON asked Dr. Allport to speak to the Society about non-cohesive gold.

DR. ALLPORT said he supposed the gentleman meant the relative merits of the two. Each has its place, and neither can take the place of the other. We need both. He said to go back 47 years they had but one kind of gold—the non-cohesive. After using this it seldom happened that there was discoloration around the filling when made by a good operator, but the greater objection was that the fillings scaled and portions were thus lost. Next came the sponge gold, which was all cohesive. This was just what was needed to use over the non-cohesive gold, to protect the surface of the filling. Everybody lauded it and used the new gold because it would stick together. But there was soon a revelation—the teeth turned blue under these fillings. At the time it was thought it was due to impurities, but it was not so,

but because the plug did not fit the cavity. It is the same to-day with cohesive gold, and the majority of operations are not as permanent as when non-cohesive gold was used. The trouble is that the profession is getting out of the old way of operating. You cannot do with the mallet what can be done with hand-pressure. By the use of the mallet many teeth are unnecessarily destroyed. There is a tendency of the gold to draw away from the cavity walls when condensed in the center of the filling. He said he had filled hundreds of teeth without seeing into the cavity with even a mirror, except when it was excavated.

DR. BROPHY said the idea of the matrix originated with Dr. Dwinelle some 35 years ago. When thoroughly understood the matrix is a good thing, but when it is not it is worse than none.

REPORT OF SECTION V—MATERIA MEDICA AND THERAPEUTICS.

BY SEC. G. E. HUNT, INDIANAPOLIS, IND.

The past year has been one of activity to the dental therapist. Antisepsis and anæsthesia are the two subjects receiving especial attention.

PENTAL.

Pental, an old compound with a new name, has been recently introduced as a general anæsthetic and a considerable degree of success has attended its use. Pental is a colorless, highly inflammable, very volatile liquid, soluble in alcohol, ether and chloroform but insoluble in water. Unlike sulphuric ether, it is absolutely non-irritant to the mucous membrane of the mouth and respiratory passages, and its administration is unattended by nausea or by a stage of exhalation and muscular activity. Spasmodic contractions of the muscles of mastication seldom occur, and will readily yield to a further administration of the drug when they do take place.

Anæsthesia is produced as rapidly as with nitrous oxide, but the action is more prolonged, and the patient may be kept under the influence for an extent of time sufficient to admit of any of the major surgical operations being performed.

The regaining of consciousness is gradual, and the recovery rapid and complete. Full anæsthesia is induced in from 3 to 5 minutes, narcosis lasting four or five minutes.

Pental may be administered in the same manner as is ether, but its extreme volatility is better overcome by the use of a mod-

ified form of Junker's inhaler, lessening the time of producing narcosis, as well as the amount of the drug used. This latter is an item to be considered, inasmuch as the present price of the compound (\$6.00 for 2 lbs. 8 oz.) renders it rather an expensive article of the materia medica.

As yet there have been no alarming symptoms reported from the use of pental in mass; but as eminent a therapist as H. C. Wood, M.D., has recently declared, after making a few experiments by inhalation and by injection into the veins of dogs, that the indications are that pental is a dangerous anæsthetic, more so than chloroform, and that, if extensively used, it will produce death by cardiac arrest. Dr. Wood further states that he believes the after effects of pental, in the human being would be disagreeable, a statement directly opposed to the evidence submitted by Dr. Hollaender, of Berlin, from whose paper on this subject the major portion of this report is derived.

Dr. Wood did not produce death from the use of pental but in one case, under the lethal dose of 2 grammes injected into the jugular vein, the effect on the heart was very alarming, the action of that organ being completely arrested a half minute before the cessation of respiration.

In view of these experiments it would be well to use pental with great caution until the physiological effects of this drug are more definitely determined than they seem to be at present. Further investigation of this subject is now progressing.

CHLORIDE OF ETHYL.

Chloride of ethyl has proven itself a local obtundent of considerable worth. For minor surgical operations, such as opening abscesses, lancing boils, extracting teeth, etc., it is admirably adapted, and it also has an appreciable value as an obtundent of sensitive dentine, but in this latter capacity must be used with sufficient caution to protect the pulp from deleterious effects.

Chloride of ethyl is at present put up in 10 gramme flasks. Tubes of one-half the size would be amply large for most of the cases in which we desire to use the drug. Five grammes are sufficient for the extraction of from one to four teeth, or for any other short minor operation. The extreme volatility of the ethyl renders it difficult to keep a part of the liquid for future use, after the neck of the flask has been broken; especially in offices where extracting teeth and lancing abscesses is not a daily occurrence.

According to recent experiments by Dr. H. C. Wood, chloride of ethyl is a dangerous general anæsthetic, and one difficult of administration, owing to its extreme fugaciousness.

ARISTOL.

Aristol, a combination of iodine and thymol, has now been before the dental profession about 18 months. To Dr. W. H. Whitslar, of Cleveland, Ohio, is due the credit of first calling our attention to the value of the new antiseptic. Aristol is designed to take the place of iodoform, iodol and sozo-iodol. It is almost inodorless, and is perfectly non-irritant. It is in the form of a reddish or salmon-colored powder, insoluble in water, slightly soluble in alcohol, and freely soluble in ether and chloroform. The chemical combination is readily broken up, liberating iodine and thymol, and to this feature of its composition is due its antiseptic ability.

Aristol may be used in connection with chloro-percha for root canal fillings, and dissolved in chloroform in the proportions of 60 grains to $\frac{1}{2}$ oz., it makes a dressing that may be used in the root canals of teeth, or as a protector and antiseptic over excoriations of the skin. The powder may be dusted in gangrenous pulps with a fine brush.

An excellent root canal dressing may be made by rubbing up a grain of Aristol in ten or twelve minims of one of the essential oils, to which may be added two or three drops of ether or chloroform to facilitate the process.

Small rods composed of cocoa butter and Aristol, in the proportion of 10 to 1 are recommended for use in fistulous tracts.

Aristol should be kept in well stoppered, dark colored bottles and bought in small quantities to insure freshness, as it deteriorates on exposure to light and air.

SILVER NITRATE.

The use of silver nitrate for the arrest of decay, although not a new feature in dental therapeutics, has recently received additional attention. In the deciduous teeth, or in the adult molars, where imperfection in the formation of enamel has resulted in superficial decay, and especially in the long, narrow cervical cavities, it may be advantageously used.

In cases of approximal decay in the anterior deciduous teeth the Arthur method of V-shaped separation may be cautiously

used to produce a saucer-shaped cavity, and after cutting away to comparatively good tooth substance, a thorough application of the silver nitrate will prevent further decay.

A serious and ever present objection to the use of silver nitrate is the blackness of the cavity after its use, but in the deciduous teeth this unæsthetic drawback is more than counterbalanced by its ease of application and the subsequent freedom from decay.

IODOFORM.

Experiments are now being made in the use of iodoform vapor for root canal dressings and in abscesses. Dr. Blair, of Louisville, Ky., is perfecting an instrument by which he throws hot air, laden with iodoform vapor, into the root canal. It is claimed—and justly—that the hot air dessicates the organic matter, and is in itself a disinfectant, but the further claim is made that the iodoform vapor is carried into recesses and minute channels, impenetrable to ordinary root fillings, and there deposited in a solid state, serving the double purpose of an antiseptic and a root filling. Whether investigation will bear out these claims is questionable. That the vapor is charged with iodine is undeniable, but the volatility of iodine is such that it seems probable that any deposit from the vapor of iodoform is composed only of the carbonaceous material given off, and that the iodine, released from its chemical combination, is evaporated.

If this hypothesis be correct, the deposit is therapeutically inert; aseptic but not antiseptic.

However, the method is worthy of further consideration, and may prove to be a useful addition to our present system of root canal treatment.

BICHLORIDE OF MERCURY.

The following is an abstract of a thesis entitled: "Corrosive Sublimate as a Germicide," by Chas. P. McClintock, A. M., Assistant to the Professor of Hygiene in the University of Michigan. The conclusions arrived at are so totally opposed to all past teachings that it is offered here without comment:

In 1881 Koch recommended corrosive sublimate as the most efficient of all known substances for disinfecting purposes. Since that time it has been universally used. After making some hundreds of experiments the author finds that Koch and those

who have confirmed his work,⁷ based their conclusions on faulty experiments, the most important of which was the failure to notice that the sublimate formed with the gelatinous coat of bacteria a compound insoluble in water, but soluble in salines, and readily removed by the blood. When bacteria treated with sublimate were transferred to gelatin or agar, the capsule of mercury compound prevented the growth of the germ, and the false conclusion was drawn that it was dead. In the author's experiments this capsule of mercury was removed by precipitation with hydrogen sulphide.

While Koch states that all bacteria are killed in a few minutes by solutions of sublimate $\frac{1}{10000}$, the experiments show that bacteria such as *Staphylococcus pyogenes aureus* may grow after having been in the $\frac{1}{10000}$ solution 93 hours,— $\frac{1}{10000}$, 11 hours,—saturated solution 1 hour. *Bacillus subtilis* grew after lying in $\frac{1}{10000}$ 41 hours,—saturated solution, 85 minutes. Typhoid germs, after $\frac{1}{10000}$, 1 hour; germs in fæces after 24 hours in a saturated solution. Several experiments comparing strong vinegar with $\frac{1}{10000}$ sublimate indicated that they have about the same germicidal power.

The experiments also indicate that the larger number of bacteria in a given culture are comparatively easily killed and and that the ratio of those killed by a germicide to those that survive is of no value. The conclusions drawn from the experiments are:

(1). That the high rank heretofore given corrosive sublimate as a germicide is without warrant, and was based on faulty experiments.

(2). Different cultures of the same germ may vary largely in their resistance to germicidal agents.

(3). Corrosive sublimate forms with cellulose, with silk, with albuminous bodies, and with some parts of bacteria, a compound that cannot be removed without washing. When acting on a germ it forms a capsule around the germ, which protects it from the further action of the germicide and in turn prevents the growth of the germ unless removed. But this capsule may be removed by the solutions, as in the blood.

The action of sublimate on bacteria is probably closely analogous to that of alcohol, etc.

(4). The presence of a gelatinous envelope in many if not

all bacteria has not received due attention from writers on this subject.

(5). In albuminous fluids, and practically all disinfection has to do with such, corrosive sublimate of any strength whatever is not a reliable germicide.

(6). While sublimate has no great germicidal powers, it does not follow that it may not be a valuable disinfectant. This point remains to be proved.

EUROPHEN, BY A. W. HARLAN, M.D., D.D.S., CHICAGO.

EUROPHEN is a yellow, amorphous powder, and is made by the action of iodine, obtained from iodide of potassium, upon isobutylcresol. The average per cent. of iodine in the compound is 27.6. The powder is resinous to the touch and adheres tenaciously to wounds and the mucous membrane. It has a specific aromatic odor like saffron, which is not perceptible in mixtures or solutions. It is insoluble in water or glycerine, but readily soluble in alcohol, ether and chloroform, and solutions made by these agents, it is also readily soluble in the fatty oils. Europhen in contact with water, such as the secretions of wounds, etc., gives off slowly small quantities of iodine, which immediately recombine to form a soluble iodine compound. While alcoholic solutions give up iodine readily, the ether solutions give it off more freely. Mixtures with zinc oxide and mercuric oxide should be avoided. Lanolin mixtures are very desirable, as the lanolin takes up a great deal of water, and thus favors the formation of the soluble iodine compounds. All solutions should be made and kept in low temperature, free from light and moisture. Europhen when applied to wounds does not cake as does iodoform, neither does it produce toxic effects; it is not poisonous. Fifteen grains have been administered with no bad effects. When applied to inflamed gingival conditions, caused by the setting of crowns or bridges, the soreness and irritation promptly subsides. It is also beneficial as an application to syphilitic ulcerations and irritations about the mouth; promptly allays the pain of an inflamed or suppurating pulp, the lanolin preparations being used in these cases. Take of lanolin 75 parts, of europhen 25 parts. This also makes a useful preparation to apply to an inflamed sore mouth caused by wearing artificial dentures. It will doubtless prove a useful dressing in the powder form for empyemia of the antrum.

On account of the lightness of the powder it is peculiarly adapted to insufflation.

Acidum Chloraceticum—Trichloracetic Acid ($C_2HCl_3O_2$). This is made by treating chloral hydrate with three times its volume of nitric acid and subjecting the mixture to the rays of sunlight until the red fumes disappear; this is then distilled and the portion coming over at $196^\circ C$. is pure trichloracetic acid. It is a colorless crystalline substance, and readily soluble in water or alcohol. It is a powerful caustic, readily destroying the mucous membrane or epidermis. A three per cent. solution is a local stimulant—an astringent; a ten per cent. solution should be used to decalcify or remove the serumal deposits from the roots of teeth in the treatment of pyorrhœa alveolaris and kindred diseases. As a cauterant agent, it is useful in destroying the pyrogenic membrane in pus cavities; also for the destruction of morbid growths, hypertrophied or excessive tissue. A $\frac{1}{2}$ to 1 per cent. solution makes an agreeable refrigerant mouth-wash.

SYRUP OF IRON CHLORIDE.

In all cases where an efficient preparation of iron is to be used as a tonic, the formula of Dr. Weld should be preferred. It is a non-alcoholic preparation, and as prepared by Parke, Davis & Co., it is not only an elegant but very useful preparation; no corrosive action of the mucous membrane or teeth is produced by it.

DISCUSSION.

DR. F. ABBOTT said he was astonished that Dr. Koch had made such a mistake and that so many others had committed the same mistake by the continued use of bichloride of mercury.

Bichloride of mercury will destroy human life, and it seems that it must kill micro-organisms. He had seen what seemed wonderful results from the use of bichloride of mercury in the mouth and relied upon it to a great extent. Eminent surgeons will tell you that bichloride of mercury can be relied upon all the time. If they get good results from its use it seemed to him that there must be some mistake in the experiments of this man McClintock. Chloride of zinc he thinks one of the very best remedies for pyorrhœa alveolaris. It does just as well as sulphuric acid, and acts more kindly.

Euophen.—If this remedy will relieve excoriations under

plates, relieve the pain around roots of teeth, etc., it is certainly a remedy worthy of our consideration. Weld's Syrup, if left to stand in an office for ten days or so, will precipitate. Tincture of chloride of iron has done inestimable injury to the teeth, and if this remedy contains the original properties of the tincture, the precipitating overcome, and yet not injure the teeth, we have got a wonderful thing.

DR. J. S. MARSHALL.—It is a mistake to think that every eminent surgeon uses bichloride of mercury, for many use sterilized water instead for disinfecting instruments, hands, etc., and washing the parts before operating. With this they have had better results than with bichloride of mercury.

Pental.—With regard to this and other anæsthetics, Prof. Turet, Germany, reports 109,230 administrations, with 39 fatalities; chloroform was administered 94,123 times, with 35 deaths; ether, 8,432 times, with 1 death; ether and chloroform combined, 2,891 times, with 1 death; ether and alcohol, 1,380 times, 1 death; bromo-ethel, 2,179 times, no death; pental, 219 times, 1 death, which will show the average of deaths greater from the use of pental than other anæsthetics.

DR. PEABODY described his method of vaporizing iodoform, which was substantially the same as given in our report of the Mississippi State meeting.

DR. G. E. HUNT.—As Dr. Abbott has said, bichloride of mercury is sure death to animal life. It should be remembered, however, that the higher and more complex the organized being the greater will be the influence of deleterious agents; and as we go down the scale to the simpler forms of life, we find more resistance to the effects of these agents. While bichloride of mercury is poisonous to animal life, it has not been proven that it is death to vegetable. The ideas advanced by Prof. McClintock are new to me, but the experiments have been carefully made and there may be a great deal of truth in them. Iodoform vapor is nothing new. It was brought out by Dr. W. H. Whitslar five years ago. It is my opinion that the iodine is evaporated and what remains is simply a carbonaceous residue which is aseptic but not antiseptic.

DR. F. ABBOTT.—Years ago it was thought that carbolic acid was the best antiseptic ever known. One says it is, while another sees germs working their way around in it, etc. It was afterward

shown that when properly diluted carbolic acid would destroy germ life. Why? Because germs live upon liquids, and if taken into the body it destroys. Now it may be the same with bichloride of mercury, that in too strong solutions the micro-organisms refuse to take it, while in weak solutions, as $\frac{1}{20000}$ or $\frac{1}{10000}$ they take it and it kills. I use it in root canals in the strength of $\frac{1}{10000}$ but never stronger.

DR. J. E. LOW thinks iodoform is too disagreeable to have about the office, and he has had patients complain of tasting it for some months after its use. He does not think that a root can be perfectly disinfected by iodoform vapor; believes that phagocytes destroy the remainder of the germs.

DR. A. H. FULLER said it was not the bacteria themselves that make the trouble, but the dead tissue that forms food for the bacteria. In our operations, if we get rid of obnoxious matter we get a cure. He thinks bacteriology has been carried too far, and that cleanliness is of more importance than the use of antiseptics.

DR. C. N. PEIRCE uses tri-chlor acetic acid on epulis tumors, spongy gums, growths over third molars, etc., applied by means of a wedgewood stick. For calcic pericementitis use on a spatula. For cleansing roots can use full strength if necessary. It has happy results on the tissues, being escharotic and astringent. It arrests pus accumulation in pyorrhœa alveolaris. For putrescent pulps force it into the root canals. It destroys the tissue and purifies in a few moments' time more perfectly than carbolic acid.

DR. J. D. PATTERSON said he has been for a few months experimenting with the Stebbins method of applying silver nitrate to cavities in deciduous teeth to check decay. He said if results were satisfactory it was certainly a good thing and that the discoloration it caused was no objection if it only preserved the teeth.

DR. J. TAFT said that Dr. J. Taylor 40 years ago recommended nitrate of silver for decay. He based his theory on the color of decay, that the black variety progressed more slowly than others, and as nitrate of silver turned tooth substance black, it would probably retard the progress of caries. Since that time Dr. Taft has used it many times, and knows that under favorable circumstances decay will be arrested. After its use if the mouth and teeth are not kept properly cleansed the effects will not be so lasting.

DR. McMANUS said his preceptor used nitrate of silver at the necks of the teeth as treatment for sensitiveness, and that it was successful, all but the black line. He knows that Dr. Stebbins' cases are successful.

DR. PEIRCE said nitrate of silver had long been used as an obtundent, but for the arrest of decay he thought Dr. Stebbins was the first to introduce it and should have that credit.

DR. A. W. HARLAN said that the theory advanced regarding the action of bichloride of mercury was old. LaPlace was the first to point it out. Five parts tartaric acid makes bichloride of mercury absolutely reliable as a destroyer of micro-organisms. Equal parts of peroxide of hydrogen and $\frac{1}{1000}$ sol. bichloride of mercury is effective. Europhen is an agent to take the place of iodoform; it answers all the purposes of iodoform and is lighter and much more agreeable. Tri-chlor acetic acid is useful for serumal deposits—A 10 per cent. solution in water—and as an astringent for the tissues. It makes a good mouth wash in one-half to one per cent. solution. The antidotes are, bicarbonate of soda, or other alkaline salts.

CROWNLESS TEETH, BY C. W. STANTON, D.D.S., BUFFALO, N. Y.

The case presented was of three members of a family of six, showing an unusual hereditary occurrence of the absence of the crowns of their teeth. The history is that the grandmother had such teeth and it was inherited. No history back of this could be traced. The father had poor teeth, inherited from his mother, the teeth being the poorest of a family of eight and were entirely crownless. The models presented an appearance of the teeth having been cut off almost to the gum line. The peculiar formation cannot be accurately described without showing the models. These will be fully illustrated in the transactions of the society.

THE EFFECT OF THE INTERNAL ADMINISTRATION OF CERTAIN DRUGS
UPON THE TISSUES OF THE ORAL CAVITY, BY J. D. PATTERSON, D.D.S.,
KANSAS CITY.

The essayist referred to the prevalent idea that the internal administration of mercurial and iron preparations was markedly harmful to dental structures, and suggested that these views, while having much of truth, were also elements of error in regard to their administration and the effects produced. The essayist

desired to call attention particularly to the manifestations of mercury in the mouth when given internally, and cited the description of the physiological effects as seen in the mouth as described in Potter's *Materia Medica*, as an accurate statement of these manifestations.

The essayist then gave the result of some personal observations to prove that these manifestations should not always be taken as an indication of mercurial poisoning.

The characteristic "blue line" which every text-book describes as present in mercurial stomatitis, and is given as one of the ever present symptoms of ptyalism, is, in fact, due to the local accumulation of salivary calculi, and in every case can be obliterated by one operation, and in no case that has ever been brought to his attention has he failed to verify this statement.

As to the "inflamed and spongy gums" the author also declares that this condition is susceptible of control and cure by means of hygienic agencies, cleanliness and antiseptics, and this, too, without discontinuing the administration of the mercury to the patient except in cases where the condition is the result of syphilitic taint.

These statements he makes on the basis of a series of experiments extending over two years, under favoring circumstances in regard to abundance in the supply of cases.

The author concludes from this that these conditions are not essentially a result of the exhibition of mercury, but are caused by a lack of hygienic attention to the mouth when this drug is being administered. It does cause congestion of the gum tissue, also an increase of the salivary activities, and there is generally less care taken of the mouth and teeth at such times and consequently greater deposits may take place. This is also parallel to the conditions existing during pregnancy. It is lack of care and cleanliness that cause the destruction of the teeth of women during confinement, and not, as is generally supposed, a withdrawal of lime salts from the teeth.

The essayist closes with the statement "that he believes that much of the supposed ravages of mercury upon the tissues of the mouth may be safely ascribed to pure carelessness, ignorance and neglect."

EIGHTEENTH ANNUAL SESSION OF THE MISSISSIPPI
STATE DENTAL ASSOCIATION.

Continued from page 485.

THE second day was devoted to clinics.

Previous to the night session of the second day, Dr. E. P. James, of Columbus, gave an interesting clinic in "hypnotism," though no person was found for a dental operation under this influence, a pin was passed through the ear of the subject, and other remarkable tests given.

At the night session, second day, a letter was read from Dr. Gordon White, President of the Southern Dental Association, giving a cordial invitation to all members of the Mississippi State Dental Association, to attend the meeting of the Southern Dental Association at Lookout Mountain, July 26, 1892.

On motion of Dr. Westmoreland, Dr. R. R. Freeman was elected an Honorary Member of the Association.

On motion of Dr. A. H. Hilzim, of Jackson, members were put in nomination, and the five following, having received the highest number of votes cast, were declared the choice of the Association for recommendation to the Governor of the State, for appointment on the new Board of Dental Examiners, according to the amended Dental Law passed by the last Legislature, viz :

Dr. W. E. Walker, Bay St. Louis ; Dr. B. Clements, Macon ; Dr. Geo. Rembert, Natchez ; Dr. P. H. Wright, Senatobia ; Dr. J. Warriner, Corinth.

Dr. B. A. Vaughn, a practicing physician of Columbus, was introduced to the Association, and addressed them in the interests of two bills now pending before U. S. Congress.

At the close of his address the following resolutions were introduced and carried, and ordered sent to the State Senators and Representatives in Congress :

Resolved, That we approve of and urge the passage of the bill creating a Department of Public Health ;

Resolved, That we approve of the bill "Pure food," and urge its passage.

There being no paper from the section of "Prosthetic Dentistry," the subject in general was discussed at some length.

Dr. D. B. McHenry, Grenada, President of the Association, presented a new device for partial plates, which he terms the "Skeleton Dock Plate." This is a narrow plate, strengthened by an imbedded gold band, and retained firmly in place by the insertion in a posterior tooth, on either side, of a pin with rounded projecting head, under which the plate springs. It cannot tip or fall out, though it is easily removed by the patient. It forms an inexpensive substitute for bridge-work, and does away with the objectionable grinding down and dressing of the natural teeth necessary for the caps and crowns of bridge-work.

Prof. R. R. Freeman, Professor of "Mechanical and Corrective Dentistry" in the Dental Department of Vanderbilt University, expressed himself as fully repaid for the trip in seeing this device alone, which he considered well worthy the attention of every dentist. He said that he was slow to pick up new devices, but he should certainly adopt this one.

On the "Anchor Plate" presented to the Association last year by Dr. W. H. Marshall, of Oxford, Dr. Freeman said that he had found it one of the needful things. It had bridged over great difficulties in the adaptation of partial plates. Though very simple in construction, it accomplishes all that is claimed for it by the inventor. In some cases one, and in other cases the other, of these two new methods will be found the one thing needed—*par excellence*.

Drs. Nesbit, Hilzlm and Spinks, who have been inventing "Anchor Plates" during the past year, spoke highly of the great satisfaction the method has given, especially where suction plates have been found objectionable. Dr. Spinks has found it of the greatest service, when a suction plate would not be worn on account of paralysis. Also in another case where a patient had been debarred from his greatest pleasure, flute-playing, for nineteen years, while wearing a suction plate; but who, with the "Anchor Plate," found himself able to play the flute with the same ease as when he had his natural teeth.

At the morning session of the third day some amusing incidents of office practice were related by Drs. Westmoreland, Walker and others.

Drs. Spinks and Dillehay gave the details of a serious case of Necrosis following the extraction of a tooth, which led to a very full discussion of the treatment of necrosis.

Prof. Peabody said it was difficult to state the cause of necrosis unless the patient knew of some direct injury. In case of depraved blood, impoverished pabulum, a very slight injury might be followed by most serious results. He was very pronounced in favoring a surgical operation, cutting well beyond the diseased parts for the thorough removal of every portion of infected tissue. When vitalized tissue is reached the mouths of the vessels are open and pabulum will flow in. He would always leave a ring of gum tissue around the necks of loose teeth, leaving them in place if possible even when removing the septi and alveolar process, the periosteum of live bone should always be preserved: sub-periosteal bone—the sub osteoblasts—being the great source of osteo genesis. Bibulous paper folded many times and packed in the wound will prevent infiltration of the huccal fluids and prevent septic irritation. A cure is the result of thorough manipulation, and the maintenance of septic conditions. He said that in the case of pyorrhea alveolaris, the margins of the sockets were always necrosed, and should be removed to hasten absorption; otherwise we would have to wait for the solution of the dead portions. Absorption would be much slower, though it would eventually be greater.

Dr. Clement wonders that we do not have more cases of necrosis, for every time we extract a tooth we open into cancellous structure, and there are from nineteen to twenty-two varieties of micro-organisms ready to infiltrate into the cavity. He would resort to surgical operation if the disease had invaded the cancellous portions between the inner and the external plates of the maxillary; but would rely on medication with aromatic sulphuric acid if only the margins of the alveola were affected.

A thorough operation, with dissection of all the soft tissues, demands a thorough knowledge of the anatomy of the parts, but if we know where the nerves and blood vessels are located, we can avoid them and operate safely.

Dr. Freeman, on the other hand, thought the brave, wise and judicious man is he who knows how to keep his hands off and let nature do her work properly, watching the tendency of the pathology of the condition, whether towards degeneracy or regeneration. If the latter wait and only assist nature, she will rally to the performance of her functions. There is always a question in heroic surgery if we have gone far enough. If we had waited

we would not have added fuel to the flames. We open up a new field for the infiltration of bacteria, and enlarge the scope of their devastations. If we have patience to wait, in a large number of cases nature's benign influences will work a cure, and we will not be forced into these bloody operations of surgery. Use the proper precautions to "fight the bugs," and nature will work the cure.

The several advantages of dilute pure sulphuric acid and aromatic sulphuric acid were discussed at length. Dr. Freeman advocating dilute sulphuric acid as taught by Dr. Wm. H. Atkinson, spices having no agency in reproducing bone tissues, or in getting rid of dead bone.

Dr. Peabody urged the tonic effects of the spices added in the aromatic preparation.

Dr. Clement also favoring the latter for its stimulating action.

Dr. Vaughn being appealed to, gave it as his opinion that the spices were added simply to obtund the pain caused by the pure acid, and to make it more acceptable.

The subject being passed, Dr. R. K. Luckie, member of the State Committee, addressed the Association on the subject of the Dental Congress of the World's Columbian Exposition, reading the suggestions as to lines of work offered by Dr. Taft, Chairman of the General Committee of Conference. He set forth very clearly the objects and aims of the Dental Congress, and urged upon each and all the duty of contributing to the funds of information desired in compiling a history of dentistry throughout the world.

Dr. Peabody, of Kentucky State Committee, and Dr. Freeman, of the Tennessee State Committee, seconded the address of Dr. Luckie.

There being no more papers, and no other business, the election of officers was held, with the following result :

Dr. A. A. Dillehay, Meridian, President.

Dr. A. A. Wofford, Columbus, First Vice President.

Dr. L. G. Nisbit, Aberdeen, Second Vice President.

Dr. W. T. Allen, Amory, Third Vice President.

Dr. W. E. Walker, Bay St. Louis, Recording Secretary.

Dr. Frank H. Smith, Grenada, Corresponding Secretary.

Dr. C. C. Crowder, Kosciusco, Treasurer.

Jackson was selected as the next place of meeting, carrying it by one vote over Pass Christian on the gulf coast.

The Dental Law as recently amended, provides for the meeting of the State Board of Dental Examiners at Jackson, the first week in April. That date was accordingly fixed for the meeting of the Association.

The usual resolutions of thanks were passed, bills paid, the officers elect installed in office, and on motion the Association adjourned to meet in Jackson Wednesday after the first Tuesday in April, 1893.

OPEN FLAME GAS FURNACE *vs.* MUFFLE FURNACE.

BY DR. A. H. PARKER, BOSTON, MASS.

IN the November issue of "Items of Interest," C. H. Land, in an article on Gas Furnaces, says (p. 681): "I have seen what amateurs pronounced perfect work done with an open flame, but have not known of anyone of experience being deceived by such sickly-looking results." This is so misleading and so far behind the times, that, in justice to myself, and to the members of the dental profession, I feel that an answer, and an emphatic one, is called for.

After an experience of nearly forty years with muffle furnaces I can well support a claim of being more than an amateur. Moreover, I claim to produce as natural looking a tooth baked in an open flame as can be produced by any muffle furnace.

The muffle furnace of forty years ago was the size of a half-barrel, consumed a bushel of coal, and required an hour and a half to reach the baking point; this furnace I used until 1867, when the idea of reducing its size and changing the fuel from coal to coke occurred to me. I made two furnaces; one from a simple cylinder stove, carrying the medium-sized muffle, which was large enough to bake a full set of teeth, and required but a hod and a half of coke for fuel; the other, the shape and size of a beaver hat, had a capacity for baking six or eight teeth, with but a small hod of coke. I baked in 45 minutes. These two furnaces were used until a few years ago.

When it was found that illuminating gas used as a fuel, was sufficient to bake the hardest porcelain, I began to experiment in the open flame, and finally succeeded in baking a beautiful specimen, *ungassed*.

Since this time, all my baking has been done with this furn-

ace, and the results, using the same bodies and enamels, have been as perfect as any work ever done with the muffle furnace.

Let me state just what the furnace is and what it will do. It is about the size and shape of a large pineapple; it bakes a set of teeth in ten minutes. One furnace, still in use, has been baked in upwards of 500 times. There are several hundred in use to-day and the demand is increasing, and about New England the old muffle furnaces have been generally discarded.

Before the S. S. White Dental Manufacturing Company took the agency of this furnace, wishing to know exactly what it would accomplish, they sent on several blocks of biscuited teeth to be baked. They were fused in ten minutes, and when compared with those of their own baking, were pronounced perfect in color and in all other respects. Is this a "sickly-looking result?"

The teeth baked in this open flame *do* "present that rich color and translucency equal to the products from either coal or coke furnaces," and they *do* "obtain the same toughness." For continuous-gum work and porcelain fillings the open flame furnace is far superior to the old and clumsy muffle furnace. It is so simple that "the office boy can easily control it while your valuable time is at the head of affairs." No man, qualified to judge, who has seen the work done with this furnace, has seen any "sickly-looking results." All are lavish in its praise, and have many unsolicited testimonials, of which the following is one:

23 EAST-FIFTEENTH ST., NEW YORK, March 6, 1891.

DR. PARKER—*Dear Sir:* Why not, after two years, state, *unsolicited by you*, what my experience has been with the Parker Improved Gas Furnace made by you?

1st—In ten minutes I can *melt* any porcelain tooth in the market with your furnace.

2d—I never cracked a tooth by heating up or cooling off in your furnace.

3d—I never "gassed" a piece of work, and no one but a blunderer could do so.

4th—I can fuse any kind of new porcelain body onto a platinum plate—continuous gum—or an already baked tooth, in eight minutes.

5th—My furnace has never got out of repair yet.

6th—Complaint: You want to make the fire-brick trays used inside just a little thicker. When you have any that are about 3-16ths of an inch thick send me a couple.

7th—The above are absolute facts, and I beg to inquire, what more could one desire in a porcelain furnace?

Faternally,

(Signed)

W. IRVING THAYER, D.D.S., M.D.

It is used by the Harvard Dental School, and also by the Boston Dental College.

THE NEW OHIO DENTAL LAW AS INTERPRETED BY
THE ATTORNEY GENERAL.

DOCTOR GRANT MOLYNEAUX,
*Secretary Board of Dental Examiners,
Cincinnati, Ohio.*

Dear Sir: Some time ago a communication from you to Ex-Attorney General Watson, submitting certain questions with reference to the proper construction of the Act of April 8, 1892, (89 O. L. P. 237) regulating the practice of dentistry in this State, reached this office. I have delayed answering the communication, in the hope that I might have a personal talk with you respecting the contents. In this hope I have been disappointed, but I give you the conclusions I have reached after a careful reading of the Act:

1. The words "regularly, since July 4, 1889, engaged in the practice of dentistry in this State," mean steadily or continually engaged in such practice; and the practice of dentistry does not include, I take it, a term of pupillage. There is a distinction between the study and the practice of dentistry, just as there is between the study and the practice of law, or the study and the practice of medicine. A person cannot be said to be engaged in the practice of dentistry who is simply a pupil, and is not qualified to do, and does not do, the work of a dentist on his own responsibility. The Act itself (Sec. 6991) gives a good definition of what constitutes the practice of dentistry. A person who had been engaged in the practice of dentistry, as above indicated, since the 4th of July, 1889, whether of age when he began the practice or not, came within the class of those entitled to a certificate on making the necessary proof and paying the prescribed fee.

2. A graduate of medicine must obtain the certificate of your Board before engaging in the practice of dentistry. The exemption set out in Sec. 6991 applies to dental operations performed by legally qualified physicians and surgeons in connection with the practice of their profession of medicine and surgery. The Act recognizes a distinction between such operations incidental to the practice of medicine and surgery, and the regular practice of dentistry requiring a certificate from your Board.

3. A physician who, in the practice of his profession, performed occasional dental operations, cannot be said to have been regularly engaged in the practice of dentistry, and hence is not entitled to a certificate to practice dentistry under the time exemption of the Act.

4. The provision of Sec. 6991—"but nothing in this Act shall be taken to apply to acts of *bona fide* students of dentistry done in pursuits of clinical advantages, under the direct supervision of a preceptor who is a licensed dentist in this State," does not authorize such student to be sent out by their preceptor to perform dental operations beyond his direct and personal supervision. The purpose of the law is to protect the public against the work of those unskilled in dentistry, by requiring proof of skill before power to practice dentistry is acquired. It permits, however, the performance of dental operations by students, so they may acquire the skill, which in time, on the certificate of your Board, will admit them to practice, provided the skill requisite for the protection of the patient is present in the person of the licensed dentist overseeing the work.

Very respectfully,

J. K. RICHARDS, *Attorney General.*

Columbus, O., Sept. 21st, 1892.

CORRECTION.

ON page 497, October JOURNAL, in the recipe for Dental Tincture of Myrrh the amount of sp. vin. rect., should be 12 ounces instead of $\frac{1}{2}$ ounce as printed.

CORRESPONDENCE.

[Correspondence OHIO JOURNAL.]

OUR VISIT TO PHILADELPHIA.

INCIDENTAL visits from New York to the City of Brotherly Love are not infrequent, and *vice versa*. We commenced these pleasures for the first time in 1863, attending the third session of the American Dental Association, and in this last visit we were vividly reminded how time works its changes. At the meeting

in 1863 we attended as one of the numerous delegates of that efficient society for all live fraternal association, the Brooklyn Dental Society, and we do not forget the enthusiasm we received at the hands of the pioneers already somewhat familiar with the work of organization. This local society, the B. D. A., if it could be truly so termed, had already gained an envied reputation for enthusiastic work, and this in part by a full and well edited monthly report of its doings, through the ability of Dr. Wm. C. Horne, now of Rome, Italy, son-in-law of Dr. J. Smith Dodge, sr. of New York City. This was one of the attractions of the *Cosmos*, then under the editorship of the late Prof. McQuillan of the Philadelphia Dental College. The B. D. A. membership was of a varied character. It took in members from all quarters and itinerated about the country, even going as far as New Haven, Conn., to hold its meetings; we would take the Sound boats at 5 p. m., and after the adjournment leaving by the 11:30 boat and getting to our offices the next morning in time for our 9 o'clock appointments. Those were glorious times, such as years will not efface. Well, the remembrance of those days have carried us away from the proposed subject of this letter, a visit to Philadelphia. The delegation of the body of itinerants was so large it enhanced the numbers of the national body largely, by delegation, which we met at this time from various parts of the country, such as Watt, McQuillan, Buckingham, Barker, Roberts, Kingsbury, S. S. and J. W. White, Judd, Forbes, Peebles, Fitch and add to these so many others who have long been co-workers and who have joined the innumerable throng that no man can number, we were painfully reminded of the changes. Truly we can say we have had a goodly heritage in that cloud of witnesses, who have evidenced by their self-sacrificing energy and their devotion to their chosen vocation. I need not tell your readers that Philadelphia is a city of many attractions above the interest of ordinary things. Three dental colleges emphasize it as a city of interest to us dentists, for where our schools are, there are our hopes concentrated, or ought to be, and provided they are what the times demand. These schools do not need my praise alone. Such a coterie of faithful teachers as Profs. Garretson, Flagg, Stellwagen, Peirce, Darby, Guilford, Trueman, Essig and others, are yearly stamping their impress for good on the minds of many young men that are to carry the standard that is to mark the

future of our profession. We can well be proud of such workers, Among the rank and file there are many names that we can and will always delight to honor. We had anticipated some months the pleasure of responding to an invitation from Dr. Bonwill to visit him, and a fortunate coincidence occurred in connection with the Philadelphia Odontological Society, they had extended an invitation to Dr. Geo. Weld of New York to favor them with a paper he had prepared, of much import, particularly in the interest of dental progress. We had the good fortune to be able to kill two birds with one stone, having our visit with Dr. Bonwill and meeting with the Odontological Society and hearing this paper by Dr. Weld, besides the great pleasure of the social atmosphere of some of Philadelphia's best men. We left New York via Penn. R. R. and found the venerable Achilles of the dental profession (Dr. Dwinelle) at the depot in Jersey City, Dr. Weld and he were to go on our train. In our desire to be *en train* sure Dr. Dwinelle suggested that we pull in and get on the train. We were so bent on securing it we did not heed the direction of the gateman for we thought *we knew*. As we appeared pulling eagerly for our train a voice sang out vociferously "hurry up," so we sprang for the first car that (seemed) attached. Achilles being the springiest was soon climbing up the steps and was well on when we discovered that the forward end of the train was on the move and in a moment we saw to our dismay that our car was not going, besides being a mark of sportive glances for the by-standers. We gloomily chased back to our seat in the waiting room, soon to make the bright discovery that if we had succeeded in boarding this train we would have found ourselves on the Washington Limited that does not stop in Philadelphia. This information sobered us and soon Dr. Weld appeared on the scene. When on the train, our attention was fastened upon an editorial of the *N. Y. Commercial Advertiser*, upon an article by Dr. Edison of New York Board of Health, just out in the January number of the *North American Review*, on the "Past and Future of Medicine." We make particular mention of this because of our purpose to ultimately comment upon some parts of it, for we feel that it has profitable suggestions that will apply to the interests of our future. Philadelphia was reached just at dark. On going to the street a novel incident occurred, which at the time could hardly be accounted for. It was one of the most grotesque

falls imaginable of a gentleman (who had eaten only an apple), which I will be able to explain further on.

I do not need to furnish any proof that the Odontological Society is *au fait*. The readers of the journals are aware of this fact.

The meeting for this evening was held on Saturday. We noticed on the card this, "*Walk right in without ringing the bell,*" which looked as though the latch string was out; Jack had the highest card,—the President. Our eyes followed about on such familiar faces as Prof. Truman, Drs. Bonwill, Faught, Reh fuss, Dan. McQuillan (a picture of his illustrious father), and many others with whom we were not familiar. LaGrippe had fastened upon many of the usual attendants. As one of the members said the living out of town of many of the celebrities tells on the meetings by the frequent absentees.

Dr. Weld was introduced with very neat remarks by the courtly president, Dr. Louis Jack, and warmly received. If appearances indicate anything, and they do sometimes, Dr. Weld has the advantage of culture in his manner of presenting a paper and secures a ready and attentive audience of listeners. His subject as divided on the programme, gave an incentive to watch closely the points of valuable interest couched in the essay. It is quite well known that Dr. Weld has at two different times called attention to the deleterious effects claimed to be indicated by the uses of tonic formulas of iron upon the enamel of the teeth. In his second paper read before the New York Odontological Society in October last, he had at this time found that Vichy was an antidote in retarding the acid action. In this third paper he has accomplished something which not only confers an honor upon us as a profession, but emphasizes the importance of intelligent observations, both in the interest of our calling, and that also of the profession of medicine—Dr. Weld being educated both dentally and medically. He has shown that he has been able to produce a formula that will meet the need for the protection of that invaluable armor of the human teeth, the enamel, and still enable the practitioner of medicine to contribute constitutional treatment of such a nature as to secure all that could be desired in the tonic effects. Dr. Weld's formula, to which his paper refers, embodies these essential features, viz: from the original formula of the chloride of iron he has eliminated the hydro-

chloric acid so destructive to the enamel of teeth, which is a decided point gained. Also, he has a theory that in anæmic constitutions there is an excess of alkalinity in the secretions and its admixture with the acid in the iron by osmotic action, results in an excessive flow of gastric juice, and instead of getting a tonic effect, *enervation* is produced. By Dr. Weld's new formula, the hydrochloric acid being eliminated, only the perchloride of iron, which is an astringent, is left. The Doctor's happy satisfaction lies in the testimony of medical men who find many patients that could not retain the original formula on their stomachs after a few doses, while this later one is received by all without nausea. So herein lies the honor the Doctor has conferred upon our calling by producing an article free from the destructive agency which acted so unfavorably upon the teeth, and *better results as a constitutional remedy*, which is a valuable contribution to medicine.

At this point we call attention to our allusion to the editorial upon the article of Dr. Edison in the *North American Review*. Dr. Edison said one of the causes of non-progress in a scientific direction was because there were too few cultured men with ambition enough to devote themselves to painstaking scientific investigations, by which the unsolved problems might be made plain. Such labors as Dr. Weld has performed in the three papers referred to, we think meets the point of Dr. Edison, and reflects credit not only upon Dr. Weld, but upon us, he being a dentist, and on medicine, he being also an M.D.

Dr. Weld's paper was very favorably noticed by many of those in attendance upon the Odontological Society meeting. Philadelphia dentists do up their society business in a very quiet and dignified manner, judging from our observation at this meeting.

Certainly they are acquainted with what goes to make up the social amenities as demonstrated by the unique entertainment at the Union League Club, the swell institution of the city. The internal arrangements were of a sumptuous nature. It being club night everything was in fine form and full of activity. The banquet room which was set for the club diners was elegant in the extreme. This club excels in cuisine and, *rarebits are a specialty*. It is our favorite and we have never had any that excelled those we had there. The hour of one A. M. gave us our first intimation that time had passed so obliviously. Much jollity was indulged

in, interspersed with many reminiscences and good stories. Only one of our party went so far as to tell the same story the second time.

We referred in the early part of our letter to an unexplained fall by one of a party on coming out of the Philadelphia depot. Around the table a story was told that let out the peculiar idiosyncrasies of some people, one of them being that some one was so sensitive to the action of stimulants that even the eating of an apple would make locomotion very uncertain. We noticed that the party had eaten an apple on his way over on the train, so that settled the cause of the fall. It affected Adam likewise, and the whole human race has been falling ever since.

During the Sunday which followed our meeting and entertainment, we were, in response to our invitation, the guest of Dr. Bonwill, a name none more familiarly known; certainly none so well known in connection with inventive genius. In value of inventions taken in a collective sense he has no peer among us. Personally he is an electrical, literary scientist, certainly no common brilliancy radiates from his active mind. The Doctor is richly located in a home and office at 2009 Chestnut street, the 5th Avenue of Philadelphia. He owns the house that was given Gen. Grant by the citizens of Philadelphia. It is very complete in appointments. Hospitality with him is inborn, a product of his southern parentage, he having been born and lived until about twenty-five years since, south of Mason and Dixon's line. He is of French descent, tracing back readily his lineage to noble families. The Doctor has one married daughter and one that graces his home, both brilliant and very entertaining, together with a son who graduates the coming season from the Pennsylvania University, and will be his father's successor so far as he may be able. He told me frankly that he did not inherit any of his father's inventive abilities, neither does he resemble his father, though equally as good looking. The Doctor's office is worthy of notice. It is replete with objects of interest that attract the eye of an æsthetic. These objects evidence that he has a thought of what is truly refined and uplifting. This is noteworthy in a place that is so unfortunate as to have even the undeserved distinction of being a place of all others to dread,—a dental office; everything in the operating room emphasizes Doctor Bonwill as a busy practitioner. Every hour of our stay we

studied with the closest scrutiny and saw what is always precious to us, neatness and order. His chair for operating is a unique novelty. You can only name it a dental rocking chair, which is prized above all others by him, and as we noted it in practical use, nothing could surpass it for cleverly facilitating easy and expeditious movements, and seemingly nothing could be more luxurious for the patient, and it does not cost \$300. We will say here in this connection that our idea of a modern style of furnishing an office would be a very large reduction of machine exhibits. In a word, we would have a dental parlor with all that is involved in the meaning of the word. Many models of irregularity cases we saw in different stages of progress, and many simple devices were pointed out, that seemed so easy, none need to err. The Doctor emphasizes his simple construction of movable bridge work which several cases in process of practical working proved, and in addition to these he allowed us to examine two pieces in his own mouth. These were a bicuspid and incisor on each side of the lower jaw. Both were difficult because of the triangular shape of the space. They can only be made plain by illustrations, which I trust the Doctor will ere long give to the profession through the journals. His latest invention of engine and mallet will be met with *wonder* and *amazement*. They will soon be on exhibition. He has no further use for those of his former pride. During Sunday we passed from interest to more interesting displays of the works of a genius, and truly, we were oblivious of the passing hours. The Doctor carries in his hip pocket a note book in which he catches the poetic inspirations that overtake him at unexpected moments, often occasioned by unexpected events. These emanations are full of vigor, pure and elevating. They are entirely worthy of a place between book covers, and I surmise that will be their lot ultimately. We have dentists that can do more than look down in the mouth. Prof. Garretson is a brilliant example as all know who have perused his entertaining books outside of professional lines.

We have enumerated a variety of objects that engaged our earnest thought and much our curiosity, but we come now to name most of all, *the wonderful*. The Doctor has been engaged now four years in perfecting a series of geometrical drawings that emphasize and prove, we think, his views correctly of the equilateral triangle, as being the type of the human jaw. We

spent some three hours going over this whole subject with the drawings before us, and truly each drawing by actual measurement proves the other. Verily, here is an example that proves that "figures do not lie." This will all be in our hands sometime, in book form. The Doctor claims that this work will prove the theory of evolution *false*. Whew! What will men say now? After we had gone through this highly intellectual repast, we turned to Dr. Bonwill and Dr. W. H. Dwinelle, and said, we can now value the compliment paid to Dr. Bonwill by our late friend Dr. Atkinson. Dr. Bonwill had called on Dr. Atkinson the Sunday following the Patriarch's Banquet. After Dr. Bonwill had gone, he turned to me and said, "For an understanding of mathematics in physiology, Dr. Bonwill has no peer in our calling." In passing along this deserved tribute, we feel we are again speaking timely and kind words of earned praise to one, who is like many of us, quickening the pace nearer the end of the earthly career.

The following day, Monday, we paid a hurried visit to Prof. Truman, who is a man of beauty and a joy to look upon, always dignified and genial in the fullest sense. He is another example of one that can turn his thought to profit in other lines than chair-work and teaching. His editorial work tells the tale of an honest, courageous Bishop-Episcopus-Editor. His late editorials testify to the alertness of his observation. Prof. Garretson we found as usual, genial and highly entertaining. His "words are fitly spoken." We enjoyed his review to us of his little pathological tilt with Prof. Heitzmann at the October meeting of the Odontological Society, which the *Western Dental Journal* has wisely given to its readers in the January number. It will bear attentive reading and prove profitable to any who are seeking knowledge. Editor Kirk received our card and our best wishes for a speedy release from that grim mysterious malady, LaGrippe, that is shadowing the pathway of so many of our number. We need the culture of such fertility of brain as he is indicating in his writings. In Philadelphia we have a goodly heritage. So many we may well take delight in honoring. During the last thirty years many noble men have fallen out of active work and left their mantle for others, who are doing work in the advancement of our calling to an altitude of valued recognition.

NEW YORK CITY.

GEORGE A. MILLS.

A LETTER FROM DR. HASKELL.

DEAR DOCTOR—On a recent visit to Boston I visited two of my former patients for whom I made upper sets of teeth nearly forty years ago. Both sets are still in wear, one of which was one of the first continuous gum sets I made. It had never been repaired, nor was it needed. The other set was carved blocks, mounted on gold. The gums in both cases were in excellent condition, showing but little absorption of process.

In my laboratory, arranged systematically, are a large number of models upon which I have made sets or partial sets of teeth on metal plates. There are several hundred full upper models, but only seven of them, where the teeth had been extracted for several years, show but a small amount of absorption. A glance at the others shows extensive absorption. This condition of things *did not exist prior to the introduction of vulcanized rubber plates* in the mouth, as I have had abundant opportunity to observe.

I was in practice 12 years prior to the introduction of rubber, and then, as now, confined my attention entirely to prosthetic work, and have been a close observer of conditions.

L. P. HASKELL.

ALL SORTS.

A PRESCRIPTION FOR BURNS.—

R̄ Europhen, gr. xlv;
Olive oil, ℥ ii;
Vaseline, ℥ ii;
Lanolin, ℥ i. M.

Sig.—Apply externally.

—*La France Médicale.*

BREAKAGE OF ROOT CANAL DRILLS.—In a recent chat with Dr. W. S. Elliot, a gentleman whose word in dental mechanics is quite close to "law," said that pulp canal drills were very much less with to break in the root under high speed than when operated likely the excessive care shown by most dentists. It's the slow

moving drill that catches and breaks ; the swiftly revolving one that carries the obstacle before or with it.—*Odont. Jour.*

A NICKEL REMOVING SOLUTION.—In order to remove a coating of nickel which does not adhere well M. P. Dronier, in *La Metallurgie*, recommends that the article should be plunged in an oxidizing liquid composed of bichromate of potash, sulphuric acid and water in the proportions ordinarily used for batteries. The article should then be taken out more or less quickly according to the thickness of the deposit and washed and, if necessary, repolished.—*Eng. and Min. Jour.*

ANODYNE SINAPISMS.—Mustard can be used advantageously as the menstrum for anodynes in the form of external application, and without destroying its value as a counter-irritant. The mode of application consists in mixing the mustard into a thick solution with olive oil or with glycerine, and then incorporating the anodyne, opium, tincture of aconite, cocaine, belladonna, or other narcotic. The vascularity caused by the mustard favors absorption, and an insensibility amounting to a slight local anæsthesia can be induced by this simple method.—*Asclepiad.*

MERCURIAL POISONING FROM RUBBER PLATE.—MR. NEWTON PETIT (Southport) communicated a very rare instance of a patient showing unmistakable evidences of mercurial poisoning from wearing a denture made of red-brown vulcanite. The patient, a lady, who was otherwise in good health, shortly after having had a vulcanite denture inserted complained of salivation, and all the usual symptoms of mercurial poisoning were present. No amalgam fillings were present in the teeth, and the plate being removed, the patient speedily recovered. For a test, the plate was then worn again for a few days, after which she again exhibited symptoms of the previous condition.—*Jour. Brit. Asso.*

CONTROLLING SALIVARY FLOW.—I find the *prepared rolls of wool* very useful for placing over the sub-maxillary and sublingual ducts, whilst for guarding against the flow from Steno's duct I use a great deal of *paper-fibre lint*. This material, which I get in large rolls, I cut into strips about three inches long by one and a half wide ; I fold down one inch so as to make one end doubly thick, and place this portion against the parotid duct. Its

fluffy, absorbent surface frequently makes it cling tenaciously to the mucous membrane; it is stiff enough to be of real service in keeping the cheek out of one's way and the mouth open; and it is rapidly and easily renewed in very wet cases.—L. MATHESON, *Brit. Asso.*

EPIDERMIN, A VEHICLE FOR THE ABSORPTION OF VARIOUS MEDICAMENTS.—DR. S. KOHN (*Med.-Chirurgisches Centralblatt.*, Vienna, describes a base prepared by himself, and named epidermin, which, he says, is especially valuable in dermatology. Epidermin is pure beeswax artificially compounded into a liniment with water and glycerine. It is a milky, half-fluid substance, which attains greater consistency upon being exposed to the air. Spread upon the skin, it dries in a few moments to a tenacious, elastic and delicate pellicle. The glycerin contained in it causes it to retain these conditions. The preparations are kept in glass bottles, with glass stoppers and wide necks. He compares epidermin with other substances in use, showing its advantages, and gives fourteen preparations, in each of which it is the basis.

RESTORATION FROM CHLOROFORM SYNCOPE.—To carry out a new method of attempting to overcome syncope produced by chloroform, the anæsthetist stands on the left side of the patient, facing his head. The left hand grasps the right side of the chest, whilst the right hand compresses the precordium with rapid and forcible movements at the rate of 120 or more a minute. The effect is estimated by the carotid pulse thus produced and by the contraction of the pupil. The mouth and air passages must be kept free by another person. A pause may be made when the pupils remain small and there are spontaneous efforts at respiration. Two cases are given in the epitome of the *British Medical Journal*, both of which, according to previous experience, would have been regarded as lost. In the first, the patient began to revive in an hour, and in the second, in an hour and ten minutes.

SUPPURATIVE OTITIS MEDIA IN CONSEQUENCE OF A CARIOUS TOOTH.—SCHWARTZ (*Zeitsch. für Ohrenheilk.*) has reported the case of a man, twenty-one years old, who complained of pain in the ear, with a purulent discharge. There was some swelling of the bony portion of the auditory canal. The employment of the Eustachian catheter was attended with bleeding from the nose.

Examination of the nasal cavity disclosed the presence of the carious root of the second molar tooth on the left side of the upper jaw and a fistula traversing the hard palate. The tooth was removed and the fistula closed. Evidences of inflammation of the mastoid process, however, became prominent, and it became necessary to operate. When the mastoid process was opened, granulations and pus were found. These were removed and suitable dressings applied. There were no further complications, and the case progressed to perfect recovery.

PLASTER OF PARIS FORMULA.—1. To Make Plaster Set Hard—Mix best plaster of Paris with about 10 per cent. (more or less, according to effect ascertained by preliminary experiment) of very fine powdered marble (calcium carbonate). Or add to it about 6 per cent. of powdered alum, or about the same amount of ammonium chloride, before mixing with water.

2. To Make Plaster Set Slower—Mix it with 2 to 4 per cent. of powdered althæa root before adding the water. This not only retards the hardening of the plaster, but also enables it to be cut, filed, sawed and turned.

An addition of 8 per cent. of althæa, powdered, retards the complete setting of the plaster for about one hour, so that the mass can be used for any purpose where it is to remain plastic at least during a portion of that time.—*Amer. Drug.*

CASE OF EMPYEMA OF THE ANTRUM OF HIGHMORE, WITH OZÆNA.—In this case the right chamber was involved and there were present all of the usual symptoms accompanying this disease. The upper teeth were much decayed on both sides. Three stumps of teeth were extracted, and the right antrum was perforated through the situation of the first molar, its cavity was thoroughly curretted, washed out with a warm alkaline solution, and then with a solution of boric acid. No tube was inserted, but the opening was plugged with carded cotton. Its potency was thus maintained for ten days, during which irrigation and insufflations of boric acid were employed. The discharge of pus from the antrum and nose ceased at this time. The condition of ozæna was treated successfully by repeated applications of blistering fluid to the diseased membrane of the nose. Canthos cotton was also frequently used in the later stages of the treatment.—*British Med. Jour.*

LIGATURES, VS. CLAMPS.—There are many cases where the clamp is supposed necessary, in which *silk* serves the purpose with as much efficiency and with much greater comfort. And I believe that silk would be employed much more than it is in difficult cases if a simple plan that doubles its usefulness were more often followed than it is. I allude to the use of a stout knot, or, better still, of a *threaded bead*. By threading on the ligature, and securing by a simple knot, a small glass bead such as is used for wool-work, one can effectually prevent the tiresome tendency of the rubber to slip over a ligature, which so often is seen in the case of conical teeth, or where there is great tension exerted on the rubber, as for instance, by the lips when a molar is being dealt with. In many cases a thread of beaded silk simply passed between two teeth, and the bead drawn snugly up into the triangular space, will often be quite enough to hold the rubber secure, without there being any necessity for tying the ligature right around the tooth or teeth.—L. MATHESON.

PROTRUSION OF UPPER JAW.—In December, 1891, a young lady called to have her upper teeth extracted preparatory to having an artificial set inserted. She had an unusual protrusion of the upper jaw. When the mouth was closed the teeth extended over the lower lip and, indeed, it was only with considerable difficulty that the patient could close the lips over the teeth.

After extracting the teeth we proceeded to cut the gums loose from the alveolus, all the way round from the second bicuspid on each side, cutting well up toward the ends of the sockets of the teeth. We then cut away, not only the outer but a considerable portion of the inner part of the alveoli. This allowed the loose flaps of gum to fall back at least half an inch from its original position.

In six months we took an impression and inserted the teeth. The gums were as smooth and regular as though the alveoli had never been interfered with, while the deformity had disappeared so completely that no one could have guessed a deformity had ever existed.—A. C. DANIELS, *Items*.

A NEW TOOTH SOAP.—The cleansing of the teeth is admitted on all sides as one of the great preventives of tooth decay, and taking into consideration the results of recent investigation upon

caries, it seems evident that this cleansing should be carried out with suitable disinfectants. Dr. Miller recommends a mixture of benzoic acid and saccharine as yielding the most rapid results in the sterilization of mouth bacteria, a tooth soap in which this combination is effected. The following preparation is pleasant to the mouth, has good cleansing properties, but would be better if it contained a little more soapy material. The formula is as follows:

Soap albus puriss.	-	-	-	-	-	60	parts
Tinc. krameriæ	-	-	-	-	-	20	"
Calc. carb. precip. opt.	-	-	-	-	-	22	"
Acid benzoic	-	-	-	-	-	3	"
Potass. chlor.	-	-	-	-	-	5	"
Sodæ bor.	-	-	-	-	-	5	"
Saccharine	-	-	-	-	-	1	"
Ol. cin.	-	-	-	-	-	.1	"
Ol. menth. pip.	-	-	-	-	-	.025	"

Perfumed with ottar of rose, etc.—*Jour. Brit. Asso.*

CASES OF REFLEX NEURALGIA are so common an element in these cases of retarded eruption, that I need not take up your time in dilating upon them.

Of course I must be understood to include the various forms of dental lesions, such as caries, exposed and irritated pulps, absorption, exostosis or cementosis and diseased roots, as factors in producing or adding to the various constitutional effects I have named; but further mention of them need not be made as they are more obvious and more commonly recognized than the retarded eruption of the wisdom teeth.

I can only briefly refer to the treatment, and I have not attempted to enter into the etiology or pathology, as it is scarcely my province to discuss them.

It is obvious, first, that it is needful to see that there is plenty of room beyond the second molar for the wisdom tooth to erupt, but even if there is, it is needful in many cases to cut away a piece of the dense cartilaginous gum binding down the wisdom tooth. Secondly, if there is not room, it is possible to help matters by removing the four second bicuspid in some cases; in others, where matters are serious, I am convinced that it is quite justifiable to remove the second or first molars. Thirdly, atten-

tion should be paid to the condition of the upper wisdom teeth, and if they are biting on the lower gums they should be at once sacrificed. Fourthly, the lower wisdom teeth, in some cases, should be removed. Fifthly, in all cases of extensive caries, where such constitutional effects as I have named are present, I feel sure that judicious extraction is of the greatest value, on account of the gain of space for the future eruption of the wisdom teeth. Finally, in all cases of hystero-epilepsy, I am inclined to believe that judicious treatment of retarded wisdom teeth will be of the greatest value.—S. J. HUTCHINSON, *Brit. Asso. Jour.*

THE COMPOSITION OF FUSIBLE METAL.—

Fusible metal expands on cooling. Fusing point.

	1	{	Bismuth	-	-	-	-	-	8	{	Below
			Lead	-	-	-	-	-	5		100° F
			Tin	-	-	-	-	-	3		
	2	{	Lead	-	-	-	-	-	-		197° F
			Tin	-	-	-	-	-	-		
			Bismuth	-	-	-	-	-	-		
Rose's	3	{	Bismuth	-	-	-	-	-	2		201° F
			Lead	-	-	-	-	-	1		
			Tin	-	-	-	-	-	1		
	4	{	Tin	-	-	-	-	-	1		254° F
			Lead	-	-	-	-	-	1		
			Bismuth	-	-	-	-	-	1		
	5	{	Tin	-	-	-	-	-	1		286° F
			Bismuth	-	-	-	-	-	2		
	6	{	Tin	-	-	-	-	-	3		333° F
			Lead	-	-	-	-	-	2		
Plumber's	7	{	Tin	-	-	-	-	-	2		Below
Solder			Lead	-	-	-	-	-	1		350° F
Soft	8	{	Lead	-	-	-	-	-	2		Above
Solder			Tin	-	-	-	-	-	1		350° F
Solder	9	{	Tin	-	-	-	-	-	2		
for			Lead	-	-	-	-	-	1		?
Pewter			Bismuth	-	-	-	-	-	1		

—MINETT, *Jour. Brit. Dent. Asso.*

CONTINUOUS-GUM.—For sometime I have varied very considerably from the methods described by the books, and which I find admit of the gum enamel plates being much more generally adapted for ordinary practice. I have not troubled myself much

about the methods that have been advocated within the last few years and known as continuous-gum facings on vulcanite plates. In the first place, it appears to me to degrade continuous-gum to combine it with vulcanite; secondly, the necessity of destroying the vulcanite plate in case of a repair to the gum enamel or teeth. In the method I use, soft platina is discarded entirely, and this is where I think the great mistake has been made in the past; soft platina necessitated covering the whole of the palate with gum enamel to obtain sufficient stiffness, this complicated the construction considerably and added to the weight. By making the plate of hard platina, No 4 gauge or thinner for a deep palate, the plate will be sufficiently and strong without covering the palatal portion with gum enamel. A triangular hard platina wire is soldered with fine gold around the rim and along the palatine side of the alveolar ridge to form the boundaries for the gum enamel. Hard platina plates made in this way can also be used for partial pieces, and hard platina bands used, soldered on with fine gold; if they are slightly hammered on a beak iron after the baking is finished they will be sufficiently hard and springy for bands. The gum body and enamel now supplied by Messrs Ash and Sons are also an improvement, since they are denser and fuse at a lower heat than the American enamels, and quite equal to them in color.

PRIMARY DENTITION IN ITS RELATION TO RICKETS.—Drs. Geo. Carpenter, and R. Dennison Pedley, of the Evelina Hospital for Sick Children, have examined the mouths of 500 children with obvious rickets, and have found that the results were not confirmatory of the prevalent ideas on the subject. Briefly tabulated their results are as follows: *A.* In the vast majority of patients, the teeth are perfect in structure. There is no deficiency of enamel. The teeth do not become loose and rapidly fall out. There is no special proneness to decay. *B.* In those rare cases where the teeth have been found defective a history of inherited syphilis has been obtained. *C.* Dentition is undoubtedly delayed.

While not holding with Panot that rickets is a syphilitic manifestation, these observers find that the syphilitic cachexia when present, is a very powerful agent in the production of rickets. They say that in a large number of rickety children a syphilitic history can be obtained if inquired for, and the observer is

not infrequently startled by the appearance in some such cases of a slight syphilitic rash on the buttocks, anal condylomata, specific ulcer in the mouth, eye trouble or what not, in a child who, for all the signs that were present at the time of the first examination, would otherwise have passed as rickety merely. These signs showed that the disease was smouldering on, and that the syphilitic cachexia was underlying the rickety trouble. On this account they do not attach that importance to the heading *B* which they might otherwise have done. What they do claim however, is that it is not proven that rickets is responsible for all the dental troubles that have been laid to its charge; that the association of rickets with carious teeth as between cause and effect, is merely an assumption; and that caries does not take place in any case in rickety children to anything like the extent the text-books would lead one to infer.

SPONGE GRAFTING.—MR. GEORGE BURTON, of Leeds, suggests the use of the sponge graft in cases where the apex of the root to be filled is absorbed or the side perforated, which has enabled him to preserve to the patient roots which otherwise would have been lost.

His method is after cleaning out all nerve debris, etc., push a small piece of sterilized sponge up to and *through* the apex. The sponge must go through. On emerging through the apex the sponge will spread out and fill the absorbed cup-shaped space; fibrous tissues will run into the sponge and a healthy graft will result, and the filling of the canal may be proceeded with in the ordinary way, either immediately or at a subsequent appointment.

In some cases we are obliged to destroy and remove the pulp in teeth, the roots of which are not complete.

He has also used the sponge graft in a socket after extraction. The cases of absorbed roots have been treated, two cases of perforation through the side, and two cases of incomplete development. He cites some cases.

No. 1. Miss B., aged 35, upper left lateral and canine much decayed, pustule over each root, ends of both roots absorbed, decayed crowns cut down, canals cleaned and sterilized, sponge graft inserted and root canals sealed with cement.

No. 2. Mr. C., age 40, root of upper right first bicuspid perforated on the lingual side by decay, bleeding difficult to control,

plugged perforation with pledget of cotton wool saturated in chloroform, prepared root canal and filled upper third, then inserted sponge graft and finished lower two-thirds of canal with the usual gutta percha point.

No. 3. C. P., aged 8, lower left six-year molar much decayed, pulp putrid, ends of roots incomplete, root canals cleaned and enlarged with drill mopped with perchloride of mercury, 1 in 100, sponge graft inserted, canals filled with gutta percha points and very large amalgam filled in crown at one sitting.

No. 4. Mr. F. L., 26, upper right second bicuspid extracted, patient returned three days after complaining of trouble from the socket, prescribed syringing with Condyl's fluid, after a fortnight's treatment found no granulation in socket, cut and trimmed a piece of sterilized sponge to somewhat the form and size of extracted root, wiped out socket with weak phenate of soda, inserted sponge and sent patient home cured.—*Dental Record*.

NECROSIS OF THE ALVEOLUS is a pathological condition of peculiar interest to the dental practitioner. The writer can speak freely upon this subject, several cases having lately come under my observation, one of which I will cite: Mrs. M. came into my office about a year ago with the L. Sup. Central broken diagonally across, the result of a blow. This tooth was very loose, and at her request I extracted it, also the second bicuspid on the same side (which was abscessed). After the extraction of the central I noticed a protruberance from the socket, which upon removal I found to be a detached pus sack about the size of a pea. The removal of this left an opening sufficiently large for me to explore in three directions. Immediately above the opening I discovered a piece of detached bone which I proceeded to remove. This plate of bone was nearly two-thirds of an inch in length, and extended to the base of the septum. In exploring posteriorly I discovered several pieces of detached bone (alveoli) which were removed through the front opening. The factor of the purulent discharge and the deep purple color of the gums indicated necrosis of long standing. Having washed out the pus canal and cavities thoroughly with an antiseptic I took a firm hold of the three remaining teeth, i. e., the lateral, cuspid, and first bicuspid, and felt the crepitation of a large plate of detached bone. I also found that these teeth were attached to the alveolar plate anteriorly,

and they might be extracted simultaneously. The patient being anxious to save the teeth if possible, I proceeded to give better drainage for the pus and dismissed her for two days. Upon her return I found the three remaining teeth very loose. She stated that there had been a copious discharge of pus since the first sitting, but very little hemorrhage from extraction. I used at this sitting, after absorbing all the pus with cotton and then syringing with tepid water, injections peroxide of hydrogen. This treatment I kept up for several sittings, then beginning with a weak solution of carbolic acid and increasing its strength as granulation began. Using tr. aconite root and iodine, equal parts, upon the gum to allay some inflammation that had appeared. Finally using pure carbolic acid upon a nerve plugger wrapped with cotton I sealed the wound. Improvement steadily continuing, I prescribed a phenol mouth wash—phenol sodique 1 part to 2 parts water. Sig.: use three times daily. When last I saw the case the teeth were comparatively firm and absorption had brought them so far forward that the space left from the extraction of the central was nearly closed, and the gums had assumed a healthy appearance.—DR. W. W. ROWE, *So. D. Jour.*

NEW PUBLICATIONS.

MODERN MATERIA MEDICA FOR PHARMACISTS, MEDICAL MEN AND STUDENTS, by H. Helbing, F.C.S. Third Enlarged Edition. New York: Lehn & Fink, Publishers, 1892. Price, Cloth, \$1.

In this work of 200 pages it has been the aim of the author to supply the wants of a full and comprehensive knowledge of the constitution, methods of preparation, tests and medicinal application of new remedies.

He says: "It would, perhaps, be well to add that in dealing with 'medical uses' of each compound, it has been a constant endeavor to indicate its therapeutical importance where possible, rather by a balancing of the whole literature of the subject than by a detailed quotation of individual experiences and quotations. Every monograph has been carefully revised and extended where necessary, in order to make the volume representative of the progress of synthetical remedies down to the date of issue. Even in the few weeks that have elapsed since the pages were closed

for press, papers have appeared on new substances which are being brought under the notice of the profession. Diaphtherin and Asaprol are antiseptics comparatively non-poisonous and soluble in water; the former is a powder which in 0.1 per cent. solution kills the cholera bacillus in ten minutes, while the latter occurs in acicular crystals, and in 5 per cent. solution prevents the growth of the most resistant bacilli."

Some five or six hundred drugs, the majority being of the synthetical class, are treated on. Many of these are of special interest to every dentist. Some of the new remedies placed upon the market have names so similar that they are apt to be mistaken one for the other. Of those treated in the book, perhaps Euphorin and Europhen are the most similar. The work describes: *Euphorin*—as a crystalline compound, structurally allied both to carbolic acid and to acetanilide. *Preparation*—By the interaction of aniline and chloroformic ethyl ester. *Physical and Chemical Properties*—A white, crystalline powder with a faint aromatic odor, and slight aftertaste of cloves. Insoluble in water, but soluble in alcohol, melting point, 51° C. Recommended as anti-pyretic and anti-rheumatic, etc. *Europhen*—as an iodoform substitute, closely allied to aristol. *Preparation*—By the interaction of isobutyl alcohol and ortho-cresol in the presence of zinc chloride at a high temperature, isobutyl—ortho-eresal—is formed. This dissolved in dilute alkali and precipitated with a solution of iodine in potassium iodide, yields Europhen. *Properties*—An amorphous yellow powder, of peculiar aromatic odor, reminding somewhat of saffron; insoluble in water and glycerine, readily soluble in alcohol, (up to about 30%) ether, chloroform and fatty oils, etc. Europhen exerts a more or less marked kolyseptic action upon micro-organic growth, probably by virtue of the free iodine which is set free in a nascent state when the compound comes in contact with aqueous liquids. It is undoubtedly equal in this respect to iodoform, while the advantages are claimed for it that it is non-poisonous, odorless, and specifically lighter. The use of Europhen is indicated in all cases where hitherto iodoform has been employed, etc.

We have merely extracted from the treatise a few points to show the difference between the two substances. On page 74 we read: "*English methylene chloride*, or *méthylène*, is a mixture of ether and methylene chloride; it must be carefully dis-

tinguished from the definite chemical compound, *methylene chloride*. A mixture of chloroform and methyl chloride has also figured in commerce as 'methylene chloride.' Both of these are claimed to be more dangerous than methylene chloride."

Again, on page 40 the writer states; "In spite of their widely different physical properties, the similarity of name has led to the confusion of ethylene bromide and ethyl bromide. It is important to avoid such an error, since the ethylene compound is capable of producing marked poisonous effects when inhaled. Several such cases are reported in literature."

The appendix, containing some 60 pages, is made up of those remedies that are not purely synthetical, and of those which at present are of insufficient importance to require detailed description in the body of the work. The tables of doses, solubility and melting and boiling points of new remedies complete the book. To those who wish to keep posted on new remedies it is a most desirable treatise.

SOCIETIES.

OHIO STATE DENTAL SOCIETY.

THE 26th annual meeting of the Ohio State Dental Society will be held in Columbus December 6, 7, 8 and 9, 1892. A cordial invitation is extended to members of the profession.

Ample accommodation and opportunity will be given for the exhibition of appliances, etc. Correspondence is solicited from any having anything new and useful to offer for the advancement of dental science.

OTTO ARNOLD, *Sec'y*,
Columbus, Ohio.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

At the last annual meeting, August 4th, twelve applicants were examined, of whom only two were successful. The following officers were elected: J. L. Asay, M.D., of San Jose, President, and J. D. Hodgen, D.D.S., of San Francisco, Secretary.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

COLUMBIAN DENTAL CONGRESS, Chicago, August 17th, 1893.

INDIA-RUBBER trees are reported to be growing wild in Lee Co., Florida.

MORE GOLD has been obtained from Spanish America than from any other part of the world.

OHIO STATE DENTAL SOCIETY meets in Columbus, Tuesday, Dec. 6 and continues four days.

DR. M. A. BAKER, Cincinnati, and Miss Anna Beiser, Chicago, were married, October 18, 1892.

CREMATORY experts say that it is impossible to cremate a set of false teeth. Four thousand degrees of heat have been turned on to the artificial grinders without affecting them in the least.

"HOW MICHAEL'S BULLET SPOILED TOMMY'S PICNIC," by Frank W. Sage, is the title of a short story in the *St. Nicholas* magazine for October. Has our Dr. Sage of Cincinnati taken to story-telling?

AT THE PHOTOGRAPHER'S.—"The first remark a woman, as a rule, makes when she enters the studio of a popular photographer is: 'Oh, dear, I would just as soon go to the dentist's as have my picture taken!'"—*Phila. Times*.

A CERTAIN enamored swain of this city wears a ring containing what appears to be a pearl, but, on closer examination, resolves itself into a small, white tooth, which he proudly explains was lost by the young lady to whom he is engaged at the tender age of five years.—*Cin. paper*.

THE GRINDERS.—"I knew when he came into the caucus that he had an axe to grind; but he didn't manage it."

"What did he do then?"

"He ground his teeth."—*New York Press*.

A YOUNG LADY^e of Avondale, Ohio, who was in New York during the cholera scare, was so thoroughly wrought up that she not only drinks nothing that is not boiled and eats only cooked food, but she also washes her teeth in claret. If this isn't extreme care, then new rules must be promulgated.

LOW BAROMETRICAL PRESSURE AND NEURALGIA.—"Every dentist knows that toothache at times becomes epidemic at certain seasons of the year. Persons subject to attacks of neuralgia are most prone to suffer then, and some then only."—*Hugo Engel, M. D.* Many teeth are unnecessarily extracted every year by dentists, and physicians especially, because of suffering caused by atmospheric changes.

W. H. S.

THE LATEST NEWS.—Dr. Frank Dawson of Wapakoneta, Ohio, and Miss Lizzie Wetherby eloped and were arrested at Lima. The Doctor is a married man.

Dr. A. R. Liber, of Salem, was arrested for beating his wife.

Nellie Jordan, a former office girl employed by Dr. E. P. Binford, a Cincinnati dentist, was awarded a verdict of \$102.20 against the Doctor for wages due, and a writ of execution was issued for the Doctor's furniture.

A SENSIBLE MOVE.—“Many of the physicians of this city are discussing the startling move that was made at the late meeting of the Mississippi Valley Medical Association by amending the constitution so as to admit to membership all legally-qualified medical practitioners who are in good standing. This is a most radical step on the part of the profession, as heretofore their societies would admit to membership none but graduates of an allopathic or regular school of medicine, while now the homeopaths and eclectics will be admitted. Many members of the medical profession are strongly criticizing the movement taken.”—*Cin. Com. Gaz.*

RODRIGUES OTTOLENGIN, M.D.S., in his new book, “Methods of Filling Teeth,” says in conclusion: “I have only to state that in describing the methods that I have successfully used I do so with no special desire to impress my readers with the idea that they are my methods. It seems to me immaterial who originates a method. The main thing is that it be useful. I have learned nearly all that I know from others and from experience. If I can now teach any one, it will be in some degree a repayment of the debt.”

Remember the above quotation when agents with patented “methods” call around selling office rights. But for the knowledge which better men gave freely, the patent-right dentist wouldn't know enough to originate a method.

THE “NEW YORK DENTIST” quoted below should take a post-graduate course in anatomy and physiology: “Watch the way your children shut their teeth,” says a New York dentist. “The lower jaw should close inside, or at least even with the upper. Many do this naturally, many more must be taught, and the sooner the easier. There is no fact in artistic dentistry more important than this. To retain the true facial lines is one of the chief efforts of the profession in its present advancement, and this shutting under is a great art preservative. A forerunner of advancing age is the heavy lower jaw, which settles more and more as the muscles of the face weaken and relax with years—a tendency which is long deferred if the jaw is trained to be held back beneath the upper. Such will be the case if the teeth close together properly. Watch your children and yourselves, and if you have been shutting your teeth the wrong way for forty years, begin to-day to reform.”—*Daily Paper.*

CHARACTER IN HAND-WRITING.—From the *Illustrated American's* Graphology Department we select the following not altogether flattering delineation, because of its evident interest to the dental profession: “D.D.S., Canton, O.: Considerable individuality is disclosed here, and, while the cultivation is not

very high, the writer is far from ordinary, and by the exercise of his best forces might easily attain a loftier plane than he has thus far reached. He is too indolent, cares too little what others think of him, pursues his own way regardless of the common conventionalities, and often suffers in consequence. The nature is restless, very secretive, and incapable of fidelity, owing to the capricious whims and changing emotions that govern it. He is never discouraged, has a stubborn, persistent will determined on its own course at all costs, and ready to use pretty much any means to compass the end. Artistic perception is totally lacking, yet a certain versatility is seen, great susceptibility is felt to the influence of the opposite sex, and an utter absence of constancy."

DENTIST AND PATIENT.—"If you ever noticed, people who have the weak end of an argument always select a time to enter into debate when their opponents are at a disadvantage. Now, for instance, there is my dentist. He is a man of excellent principle, but he cannot quite reconcile himself to the theory of equality of the sexes.

"He is not one of the kind who has a degraded estimate of woman; oh, no, so far to the contrary, he wants to mount her upon a little pedestal in her own home, and there adore her. He thinks her province is strictly within the domestic circle, that she can do much towards 'influencing' the masculine portion, but when it comes to mingling in the world of business or of politics, she is out of her sphere, and should leave such matters to the sex that is both physically and mentally qualified to cope with such affairs. We have had several discussions upon the subject, but the time he likes best to talk with me about it is when I am in the dentist chair and he is engaged in the occupation of filling my teeth.

"It is then that the favorable moment appears to him for advancing this kind of conversation. So when the delightful (!) dental process is going on, and my mouth is wide open and filled with instruments, he commences on the subject, and, as he has it all his own way, with no interruption, save that of an occasional moan, he waxes eloquent, and, of course, achieves a complete victory. He usually begins with the question: 'And do you really think the world will be much better when the women all vote?' An inarticulate answer, resembling no human vocalization, is all the response he needs to continue:

"'Well, I don't know; I very much doubt it, although I don't know as I should really object if I thought it would improve matters, but you see if women become politicians they will lose all the power they now possess over the men; and I believe that women are too sacred to be polluted as they would be by contact with grosser elements. A woman always loses that indescribable charm which makes her so lovely, when she places herself on the same footing with men. She is too sensitive, and it is not intended that she should witness such scenes as she would have to in mingling with the outside world. Then, again, what would become of the homes? I believe firmly in home life, and how shall we have it if the women all go into business?' This is but a sample of the way he begins, and I sit there powerless to speak, and literally at his mercy, while he plies me with these unanswerable (?) questions."—*Cin. Com. Gaz.*

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CONTRIBUTIONS.

DISEASES OF THE GUMS AND THEIR TREATMENT.*

BY CYRUS SEE, D.D.S., MEADVILLE, PA.

THE gums are an amount of fibro-cartilaginous tissue, largely fibrous, placed upon the alveolar processes, and about the necks of the teeth, as protecting cushions.

The mucous membrane, which covers the surface of the gums, is reflected around the necks of the teeth, and is continuous with the membrane covering their roots and lining the sockets thereof. This membrane has a variety of names, peridontium, periosteum, peridental, etc., as suits the particular fancy of the user. Underneath the gums are the alveolar processes, which constitute a large portion of the maxillas, and accommodate the roots of the teeth. These processes are vascular and spongy, easily irritated, and probably more liable to pathological action than any other portion of the bony system.

In some mouths these processes are firm and unyielding,

* Read before the Lake Erie Dental Association, May 3, 1892.

while in others the structure is loose and yields easily; hence teeth for one person are more easily extracted than for another, notwithstanding there may be no outward appearance denoting the difference.

This difference in structure of the alveoli may prove to be a prominent factor in some of the pathological changes noticable in our subject.

In a healthy state, the gums are remarkable for their insensibility, bearing with little or no response the pressure and irritation to which they are continually subjected during the process of mastication.

The mucous membrane is thicker over the gums than over the other portions of the alimentary canal; in fact it constitutes the larger part of the gum tissue.

The term disease is the opposite of ease, and means a departure from a state of healthy, or assumes a pathological condition.

The diseased conditions more often met with, in the mouth, are from the accumulation of tartar, dead teeth, overcrowded condition of the dental arch, periodontitis, mercurial impressions, scurvy, syphilis, cancrum oris, vulcanite irritation, hypertrophy and aphthæ. Of these, the trouble from the accumulation of tartar, overcrowded condition of the dental arch, periodontitis when caused by the death of the tooth pulp, and vulcanite irritation, or irritation from any mechanical appliance, usually disappears upon removal of the exciting cause. The other conditions are usually from some constitutional disturbances, and while local applications will relieve, systematic changes are necessary to cure. These changes can usually be consummated by proper medication and dietary and hygienic regulations.

The particular trouble, or complication of troubles, to which I wish to call your attention, is the diseased condition of the tissues contiguous to the teeth, separate and distinct from mercurial impressions, or syphilitic taint. Here we find irritation and recession of the gums, hypertrophy and periodontitis, etc., in different stages of development and all so closely allied together that I shall consider them as one. All are caused by the same disturbing elements, and yield to the same remedial agents.

The human organism is like an engine of wonderful construction, with many and delicate parts. If the engineer in

charge is capable and conscientious the engine will perform the duties required to the satisfaction of its maker. But let the engineer overload this engine or crowd it beyond its capacity for speed, or feed it too much or too little oil, or oil of an inferior quality, or be neglectful in his care thereof, allowing dirt to accumulate in its bearings and the various parts to become loose and shakey, and we will soon find that it will not do the work required; or, in other words, we will have a sick engine, and needing a thorough renovation and readjustment of its parts, when with proper care the load will be carried with ease.

So it is with man. A machine of wonderful construction, and endowed with reasoning faculties which take the place of the engineer of our mechanical engine. He is subject to rules of government given him by his Creator, which if strictly observed will keep the machinery of his system in proper working order. As our mechanical engine requires care, oil and steam, so man requires care and food. If he crowds himself beyond his physical ability for work, or overloads with food or drink, or uses food not suitable to his habits, or is neglectful of hygienic laws, pathological conditions will develop which, if not averted, will continue in their development until the whole system is affected, and which may be more clearly shown in some part or parts thereof.

Man was created perfect, every part of the system in perfect working order, in fact health reigned supreme; but from habits voluntarily formed or from force of circumstances hygienic laws were set at defiance, and the result is that we suffer either from our own sins or from the sins of our fathers.

Take a child that is born of healthy parents and is endowed with all the natural qualities necessary to develop with proper care into a healthy man. He goes through a cramming process at school and college, yet admits that at the commencement of his business life he is the perfection of physical development. He rushes into the whirl of business excitement, breakfasts late, and at noon takes a hurried meal either at home or down town, in the evening eats still more heartily, in fact takes three hearty meals inside of twelve hours, supplemented often by one still later in the evening. The mind is crowded with business cares as well as the stomach with food, and sleep, the sweet messenger of rest, nature's time for recuperation, is now less refreshing. It will indeed be a strong constitution that long before middle life is

reached does not show some form of resistance to this mental and physical strain.

Our perfect man now rises in the morning nervous and irritable. Work that was once easy begins to be a burden. The beginning of pathological changes are at hand, and unless there is a change in habit it will not be long until there will be a disordered condition of the system. Indigestion in some of its various forms will appear; if the food is not properly digested it cannot be assimilated, hence the system does not receive the nourishment required. With one impaired organ in the system more of a burden is put upon the others, and it will not be long before the stomach, intestines, liver and kidneys are all doing their work imperfectly. Our perfect man is now in a condition when local lesions make their appearance, he is rheumatic. The gums are at first irritated, possibly it insiduously settles around one tooth or pair of teeth, possibly there is an acute attack in which all the teeth, or many of them, are affected. If the alveolar processes are soft and spongy the ravages of the trouble are the more destructive. The tender tissues break down, and we have developed what some call pyorrhœa alveolaris.

Pyorrhœa alveolaris is not a disease, but is a state or condition reached in the development of disease. The term is said to mean a pus flowing alveolus, and is correctly applied to a condition where pus exudes from about the necks of the teeth. Pus is the debris of broken down tissue, and may exude from around the necks of the teeth, or it may be absorbed into the system and eliminated therefrom in some other way. This absorption is in proportion to the vigor and vitality of the system. Hence we have cases in which there is recession of the gums, the denuding of portions of the teeth, usually covered with membranous tissues; in one there is apparently no pus, while in others the exudation is sometimes profuse.

If at the first appearance of this trouble a thorough physical examination were made by competent medical experts, including a chemical analysis of the urine, the key to the situation would undoubtedly be discovered; when, with a proper observance of hygienic laws and moderate medication, the transformation from incipient disease back to health would be complete.

A chemical analysis of the urine, in acute cases of inflammation of the tissues, covering the roots of the teeth and parts con-

tiguous thereto, will generally show a strong acid reaction with an excess of urea or uric acid, and possibly of both. If a normal condition of the system be speedily regained, there will be no breaking down of the tissues. If restoration to health be not followed by a change in habits, that were the cause of these physical disturbances, there will undoubtedly be a return after return of these troubles until they become chronic.

It is better that the chemical analysis referred to be made by an expert analyst, for not all of our medical practitioners have the apparatus required or have given the subject the attention necessary to make a correct quantitative analysis.

The appearance and development of these local troubles is different in different subjects, and sometimes in the same subject. Our outlining is but a general form.

If there be an hereditary tendency to pathological conditions, slighter causes will incite their development, which may be the more rapid and destructive. That which causes inflammatory action in the mouth of one person may develop in some other locality in another, and be called rheumatism or gout.

A chain is no stronger than its weakest link; and so it is with man, disease shows itself in the weaker parts.

There are cases of pathological lesions of the mouth, when to all appearances the patient is enjoying perfect health. But who can say that outward appearances are not sometimes deceiving. Many a person goes through an average life time wholly unaware that organic trouble exists, or that hereditary disease in some form or other lies dormant, only awaiting the necessary conditions for its development.

Bacteriologists tell us that the little parasites, whose names and number are legion, are the direct cause of all infectious diseases, and that most diseases are infectious.

Whether this be true or false it stands us in hand to be careful, for we occupy a sphere wherein, if there be truth in this theory, we can communicate disease from one to another very easily. We should therefore put ourselves on the safe side and use every precaution known to aseptic science.

That our specialty is well up in this science there is abundant proof. Yet the old saying, "that there are black sheep in every flock," is true.

In a paper read a few days ago before a social organization

of this city, by a prominent physician, also a resident, on "Consumption as an Infectious Disease," he made use of the following words which I quote *verbatim et literatim*:

"Physicians have communicated the disease, and specialists, in particular, by the instruments, in mouth and throat, which have not previously been disinfected. In this respect dentists are the greater sinners. Their instruments go from mouth to mouth continuously without anything like disinfection. The separator which they place between the maxillaries to facilitate the extraction of teeth when they use an anæsthetic, does duty year in and year out without ever seeing a bichloride solution, and the microscope would discover on it, and in it, germs of variety and multitude that no man could number. Unless these worthy men have recently reformed and dropped into the trend of modern aseptic art, every visitor to a dentist's chair takes his life in his hands, or certainly vast colonies of microbes in his mouth."

Gentlemen, this is a severe arraignment, yet, if true, it is a just arraignment. I know not whether this gentleman gained his information from personal observation or not, nor who his family dentist is. But I do know, that if applied to our profession collectively, the statement is not true.

I say to him, and I say to you, and I say to all, that it is not true. Yet, and I blush with shame as I say it, there are "black sheep" in every flock. It will not relieve us from responsibility in this matter to say that there are "black sheep" in the medical profession, or in every other calling in life.

From the very commencement of the discussion on asepsis, our speciality has been "in the trend of modern aseptic art," and there has been no recent reformation, but simply a growth to a higher state of perfection, shoulder to shoulder, with our medical brethren.

Among the wise provisions of nature, is one, that for every disease there is a cure. But it is left for man to investigate and find the remedies and make the proper applications.

If there be truth in the claim of the bacteriologists, that their investigations show that the bacteria are the cause of many if not all of the diseases that inflict animal life, the remedy nature has provided is, that the organism of these parasites is such that the different kinds fight and destroy each other. Also that the leucocytes or white corpuscles of the blood, whose func-

tions for so long a time were unknown, devour the bacteria, and for this reason Metchnikoff, the Russian zoologist, calls them phagocytes. If these theories are true, our systems are well protected, and are as some writers claim, like well organized states. The white corpuscles of the blood are the military forces, ever ready to defend us against the invasion of bacteria. But as the armies of nations sometimes become weak or disorganized from lack of new recruits, or from want of proper discipline, and the nations thereby suffer defeat and humiliation, so it is with our systems. The white corpuscles of the blood become weak in numbers, or in vital force, and are the more easily overcome by the invading bacteria.

This is an interesting subject and a suitable field for writers of fiction, and the day may not be far distant when we can read of the wars now being waged in our systems, of disease against health, of parasite against parasite, written in the highest style of fictional art as we now read of the wars and conquests of feudal times.

The danger from infection appears to depend on the ability of the exposed to resist, and that there is not so much to fear from the virulence of the bacteria as from the impaired vitality, and the susceptibility of the system to pathological conditions.

History tells us that teeth were filled more than twenty-five years ago. Then for all these years people who visit dentists have "taken their lives in their hands," and have been more or less exposed to all manner of infectious diseases, yet how few if any are the instances wherein disease has been communicated.

This is evidence that we as a profession are well up in aseptic science, in practice as well as in theory, or that there is not an hundredth part of the danger in this direction that some seem to think.

Dentists should be cleanly in person and in habit, and see that their instruments and all the paraphernalia about their offices is clean. There are a great deal of virtue in soap and water if properly applied. If soap and water will not clean our hands and instruments, will it cleanse the knives, forks and spoons on our tables? If it is dangerous to visit a dentist it is certainly dangerous to dine at a hotel or at a friends' house, or possibly at our own homes. If it is so dangerous to visit a dentist, it certainly is dangerous to visit or call to our homes our family

physician, for he is continually in the presence of the deadly microbe. Therefore, we should only consult with him through a telephone. We cannot walk the streets, for the air we breathe is full of parasites. We cannot shake hands with an invalid friend, for he is covered with them and they may crawl into us. Water is full of parasites, therefore we should not drink it. If, then, there is so much danger in living, we had better die and let the parasites have our bodies, but in this we should be careful lest some of the microbes get into our souls and contaminate heaven.

Now to the point. The exercise of a little common sense, and a reasonable amount of care in cleansing our hands and instruments, using antiseptics as occasion requires, and there will be no danger whatever of communicating disease to our patients.

I believe that dentists as a class are clean, yet there may be one here or there unworthy of the name of dentist who is not. Intelligent patients will not make a second visit to such an one. The desire, however, for something cheap, will, with some, palliate a large amount of uncleanliness.

I am not throwing stones at any one in particular, but when so serious a charge as this is laid at our doors and made so public as this has been, it is our duty as dentists to see if there is just cause, therefore, and if there is, to say to him or them who are in fault, to "get into the trend of modern aseptic science," or get out of the business.

The science of bacteriology is yet in its infancy, and we should not be too hasty in accepting the theories of those who are so nobly delving in its mysteries, but should always be ready to grasp the truth when fully demonstrated and to govern ourselves accordingly.

I have dwelt on the aseptic side of my subject, believing that this question should be brought fully to your attention and should receive your careful consideration, for if the disease of the gums are caused by the infective bacteria, the uncleanly dentist is a "great sinner in this direction."

In conclusion, I claim that the theory of inflammation and breaking down of the gums and tissues contiguous to the teeth, is a reflex action from constitutional disturbances, rather than from local irritation or infection. If so, what treatment is necessary to bring about a healthy reaction?

First, a strict observance of hygienic laws, in eating, drinking, working, resting, recreating, sleeping, bathing, and wearing apparel.

Second, such constitutional treatment as may be necessary to excite a healthy reaction all through the system.

Third, such local treatment as may be necessary to soothe or stimulate to a healthy reaction.

As this trouble may be hereditary, coming down from generation to generation, it will take generations to bring about a thorough eradication and the restoration of the progeny of our once perfect man to the same degree of physical perfection. That this can be done I have no doubt. Look at the wonderful development in the animal world. Take the horse family and note the achievements brought about by scientific breeding, training, and feeding. Man is master of the situation in the development of the lower animals, but comes far short in the achievements that might be obtained in his own development.

For local treatment in acute cases of the tissues mentioned, paregoric is an excellent anodyne, and zinc chloride, in proportion of three grains to the ounce of water, is a mild astringent and gentle stimulant. In the pyorrhæic stage of development the zinc chloride in full strength may be applied once or twice a week, after all foreign substances have been removed from around the teeth.

For constitutional treatment it depends largely on the stage or form of development. These conditions can only be determined by observation and experience.

If urea or uric acid are found in excess, lithiated hydranga is an excellent alterative and eliminator. Fellow's syrup of hypophosphites, malt in numerous proportions, and codliver oil in combination with other remedies, are excellent tonics and tissue builders. A combination of pepsin, pancreatin and locto phosphate of calcium is an excellent aid to digestion.*

The pepsin acts on the food while in the stomach, and the pancreatin while in the duodenum.

Most people eat too much. It is not the amount of food eaten, but the amount digested and assimilated that nourishes the

*Pepsin perum pulv., gr. 1;

Pancreatin pure, gr. 1;

Lacto phosphate of calcium, gr. 2,

system. A strict observance of hygienic laws, with all the out-of-door recreation possible, will prove beneficial.

The patient should not worry about his health, his business or anything else: and when he leaves his office or business for a few days' recreation, or at night, when the day's work is done, he should leave his business affairs there. Lock them up in the safe if necessary. In other words, when one works, work. When one plays, play.

I have been led to these conclusions not only by observation, but by personal experience. And since I have tried to follow the course herein described, in a general way, I have had relief from acute inflammatory attacks of the tissues mentioned, which were very annoying and at times extremely painful. Further, the trouble with my eyes, which consisted of inflammation of the iris and schlerotic coats, has also disappeared and I now enjoy good health.

There are other abnormal conditions which I trust will be considered in the discussion of this subject. Some of these conditions are attributable to systemic derangements, some to mechanical irritation, and others to local disturbing agents.

Do not understand me as discouraging local treatment, for I believe much good has been accomplished thereby. Yet if we can find the real cause and remove the same, either by our own efforts or with the assistance of our medical brethren, more good will accrue to our patients.

THE PARKER INLAYS.

BY L. P. HASKELL, CHICAGO.

On a recent visit to Boston, I called upon Dr. A. H. Parker, the inventor of the "Parker Gas Furnace." I found him, like myself, one of the old "tooth-carvers," he having continued it for forty years. During this time he has made every tooth he has put in the mouth. The material he uses is the hardest fusing of any I have ever seen.

About twenty years ago he made his first porcelain inlays, some of which are still in wear. He showed me very carefully his methods, and they are certainly very simple and perfect in results. There is no metal used, and the inlay being partially

fused in the plaster model, it is not necessary to remove it from that before fusing, a very difficult thing to do in many cases. There is the least possible amount of shrinkage, just enough to allow for the cement in the cavity adjustment.

In the baking of these inlays his "open flame" gas furnace does work to perfection, as I saw him use it. There is no gassing and the fusing is as perfect as that of the closed muffle, a natural looking tooth, or inlay.

It is interesting to witness the facility with which, from long experience, Dr. Parker makes a tooth or section for any given case, doing no "biscuiting," but carving, inserting pins, enameling at once, and when fused it is a finished production, and done in half an hour, oftentimes.

Dr. P. furnishes materials to dentists.

MECHANICAL DENTISTRY.

A TALK TO STUDENTS.

BY DR. D. W. PARSONS.

It is a well known fact, that as soon as the student becomes initiated into the fascinations of the operating room, he seems to thoroughly despise, and avoid the more plebian occupation of the work-room. Again many students have been articulated to registered practitioners, thereby fully complying with the regulations of the separate colleges, yet in whose practice perhaps they never have had the opportunity of acquiring the manipulative skill, and extreme nicety of touch requisite for branches of high class dentistry.

Again, the student who comes forth from the work-room of a high class practice, in fact, one who would hardly deign to soil his hands other than by the handling of the king of metals, might well be posted up in what might be called "field dentistry"—viz:—the prompt repairing, or perhaps a better term would be patching up of dentures, whether metal or vulcanite. This to a certain extent would be a departure from his ordinary work, and such a work might confuse him, and thereby upset him for that part of the examination in which he should shine forth in brilliant colors; while had he devoted a *little* (mark the adjective please, gentlemen) time and study to this style of work, he would

perhaps have gone through the mechanical part at least, of his examination without a ruffling of his feathers.

As regards soldering, every student should be able to use either the mouth or foot blow pipe. To a man who has constantly used the foot bellows, it would be extremely embarrassing to have a mouth blow-pipe handed to him. It requires considerable practice to be able to keep a continuous blast on your case and to avoid missing the flame and consequent sending a blast of cold air on to the teeth, which in all probability would result in cracking two or three of them. Again the foot blow-pipe in inexperienced hands, may easily result in the melting, not to say sweating of a gold denture. As regards the soldering of the gold crowns and collars, this is a luxury that not many of us have had the pleasure of revelling in. I recollect one of our esteemed professors using very unparliamentary language during this interesting performance, for I well remember the shocked expression that came over the faces of the students standing round.

Cutting off of a clasp, and resoldering it to the plate, I suppose all will say is very easy. I quite agree with you all, gentlemen, yet how often do we not see great lumps of solder stretching from the plate to the clasp. Again, has it never occurred to any of you here present, even those fully equipped with the war-paint of our profession, that after fitting a clasp to find after soldering it, the fit is not nearly as close as before? What was the reason? Either the careless handling of the plate when the clasp was only waxed, or else the cutting away of too much of the plate and the soldering causing the springing of the band slightly towards the plate. It would be impossible to even touch on all the possible mechanical things one might be asked to do in the examination, but just a remark about the mal-letting of a plate. To my mind too little care is given to this stage of plate sticking up. I think it is extremely hard to mallet your plate in such a manner as not to split it, especially when the palate is very high or when the space between some standing teeth is rendered an absolute undercut by the tilting of the tops of the teeth across the intervening space. Nothing else but great patience and gradual working down of the palate will prevent it splitting right across. It is by far the best to get your case somewhat of a fair fit before putting in between your zinc and counter die, and even then starting your hammering with very

gentle blows, and constant annealing. Like they say of a good dissector, "Half of his time should be spent sharpening his scalpel," so should a great deal of the good mechanic's time be spent in annealing his plate.

The making of metal lowers where the incisors and canines are standing is one of the most difficult things for a mechanic to do. There is nearly always a great ridge standing out at the internal alveolar edge which renders the casting of the model a very difficult, in fact almost an impossible task. I for my part always cast first what is called a core. Make the model as smooth as possible, then take some thin tin foil and cover the inside of the model, pressing the tin very closely to the plaster; then take flour and casting sand in the proportion of 20 of flour to 100 of sand, mix these well together first day, then moisten the mixture slightly to about the same extent one would ordinary casting sand and press it well on to the model with the fingers, bury a piece of strong wire in it, leaving a piece standing out at the back as a handle, if you like, then fill up to the top of the undercut only, then when this is firmly pressed together (leaving no bits overhanging) draw it out in the antero posterior direction of the mouth, or in other words draw it out at the back, and then place the core in the oven until it is baked perfectly hard and dry. (Two or three should be made, in fact a fresh core should be used for every zinc casting). When dry, place the core (having cut off the handle at the back perfectly level with the sand) in the model and then cast in the ordinary manner; the undercut will lift out the core when the model is taken from the sand, it can then be removed from the plaster from behind and placed back in the sand, and then the zinc poured in. The casting when cool will require very little trimming and the undercut will be found almost perfect. This only requires a little practice to produce an excellent model.

THE RELATION OF DENTAL AND NASAL DISEASE.

BY WILLIAM HILL, M.D., B.SC., (LOND.)

WE are all of us continually coming across cases of suppurative catarrh of the antrum, which have resulted from diseased condition of the teeth, and even now and then we find dental

diseases resulting from a morbid state of the nose, and its large maxillary sinus. And again, hypertrophy of the tonsils and inflammation of the glands of the neck, especially in certain diathetic states, are often seen in relation with carious conditions of the teeth. Moreover, cases are every now and then met with in which granular pharyngitis, hypertrophy of the lingual tonsil, pharyngeal tenesmus and chronic sore throat can only be successfully treated by removing sources of irritation and contamination in the mouth.

Let me in the first place ask your attention for a few moments with reference to the subject of irregularities and deformities of the upper jaw. It is impossible to criticise all the theories which have been put forward to explain these conditions, but it is obvious that no hypothesis is likely to prove generally acceptable as competent to explain *all* maxillary deviations in *all* cases. There are many factors concerned in the normal expansion and growth of the upper jaw, and I am not prepared to urge more than this, that a rhino-pharyngeal obstruction to normal nasal respiration is one such factor. Heredity, artificial selection, nasal peculiarities, civilization, diet, trigeminal and other nerve influences, thumb-sucking, exanthematous fevers, struma and traumatism singly or more or less in combination, are doubtless also concerned in maxillary deformities and dental irregularities, but with these influences I am not now concerned.

Some stress is lightly laid in the Dental text-books on the influence of the sphenoid or wedge-bone in the development and expansion of the cranium, maxillary and other bones, a subject first elucidated by Hilton. Any factor, whether hereditary, or otherwise, which retards and diminishes the growth and expansion of the wedge must lead to maxillary stunting, and therefore to small choanæ and narrow contracted jaws. The fact that the growth of the body of the sphenoid and the expansion of its cavity or sinus is important in pushing down the vomer, and so lowering the level of the palate is very suggestive; it must be remembered that the formation and expansion of the accessory nasal sinuses takes place largely during the period of eruption of the permanent teeth, i. e., during the period of life when adenoid growths are commonly met with, and it is difficult at first sight to explain why enlargements of the naso-pharyngeal and faucial tonsils should retard expansion of the antrum sphenodal and

other sinuses, except as suggested by Michel, and adopted by Spicer, on the ground of rhino-pharyngeal obstruction leading to abeyance of normal nasal respiration and functional disuse in the mouth-breather, the various sinuses being accessory to the nasal respiratory function, and serving as reservoirs or warming chambers. But though abeyance of nasal function may lead to a small nose, small sinuses, and therefore to ill-developed and contracted maxilla, it is not probably that interference with the normal tonsillar function which must accompany hypertrophy of the naso-pharyngeal and faucial tonsils may have something to do with the condition. It must be remembered that one of the rôles of these glands is to receive the lymphatics from the nose and its surrounding bones; hypertrophied glands must result in lymph-stasis and congestion in the neighborhood of the adjacent sphenoid and maxillary bones. Possibly lymph-stasis causes hyper-nutrition and early ossification, thus retarding expansion of the sinuses.

At the same time other influences are at work at the inferior plane in all mouth-breathers; there is no doubt that the normal position of the tongue with the mouth closed, is with that organ lying against the hard palate; so placed it cannot but affect the shape of the growing palate, tending to flatten it out, and preventing such contraction of the alveolar processes as is seen in the saddle-shaped and V-shaped maxilla and vaulted roof. The effect of the lateral pressure of the normally-placed tongue and lips in correcting irregularities of the permanent teeth is well known. During mouth breathing, from whatever cause, the expanding force of the tongue is in abeyance, the upper lip is raised and allows the incisor teeth to protrude and the weight of the dropped lower jaw pulling through the buccinator and tissues of the cheek acts as a lateral compressing force causing maxillary contraction, especially in the neighborhood of the bicusps.

But mouth-breathing, the result of tonsillar and other obstructions of the rhino-pharyngeal tract is probably concerned in the production of dental caries, as well as being a factor in maxillary irregularities.

Callin, thirty years ago, pointed out that the flushing of the dental apparatus with alkaline saliva (which takes place in normal respiration with the mouth closed and the tongue against the palate) is seriously interfered with in the victims of buccal

respiration, and Spicer has shown that the teeth which decay soonest are those which are least flushed by the buccal fluids. One of the commonest symptoms complained of by mouth-breathers is the dry throat and dry mouth on waking in the morning; the throat becomes more irritated during sleep than at other times, and it is probably true that the processes concerned in the production of dental caries are more active during sleep, and especially active in mouth-breathers.

In the ordinary way, with the mouth closed and the tongue filling the one cavity, far less saliva is poured into the buccal region during the night than during the day, because of the absence of the stimulus of food, and from the rest of the mandible and masticatory muscles during sleep. With buccal respiration going on, the small amount of alkaline saliva will soon be diminished by evaporation and the mouth becomes dry; moreover, concentration of the buccal fluids almost invariably leads to acidity in the mouth, and it stands to reason that mouth-breathers, with their comparatively dry buccal cavities, are more prone to an acid reaction of the oral fluids than those who respire normally through the nose. It is well known that the human mouth forms an excellent culture medium for micro-organisms; during health a number of microbes, some innocent, some pathogenic, lead a bare existence in the oropharyngeal tract, but on any deviation from the normal they pass from the nearly harmless, quiescent stage into that of active reproduction.

Germination in the acid mucus is accompanied by the generation of lactic, butyric, acetic, malic, and other acids; of these probably the chief and most important lactic acid, is produced by the fermentation processes of the lactic acid bacterium. This acid production is much greater at night when there is less chance of salivary neutralization, and when the movement of the tongue and lips are at rest. Moreover, similar additions will favor the microbic decomposition of food debris between the teeth, which again is accompanied by the generation of acids. The reproductive processes of micro-organisms and the formation of acids, and especially of lactic acid, which goes on nightly in the mouth-breather, must tend to excite a carious process in teeth otherwise predisposed, by their quality, structure, position, shape and pitting. Decompositions with the production of acids in secluded recesses leads to solution of enamel and to the establishment of these

carious processes in the dentine in which micro-organisms probably play a further part. Now we must also remember that the frequently flushing of the mouth with alkaline fluids is not the only means the organism has for checking the baneful processes associated with microbic reproduction in the mouth. As everybody knows, healthy buccal fluids contain a number of bodies known as the salivary corpuscles; these cells exhibit amœboid movements and differ in no way from the ordinary leucocytes or white corpuscles of the blood, except that they are a little larger. These bodies were formerly believed to originate in the salivary glands, and it is probably true that some of them do find their way into the saliva by migrating from the blood vessels into the salivary ducts, but it is now known that the tonsils are the chief source of these bodies which migrate from the lymphoid follicles into the mouth and pharynx.

As regards the function of these corpuscles endowed with amœboid methods of locomotion and digestion, it would appear that their rôle is to act as scavengers in the alimentary, respiratory and other tracts in which they are found, hence they have been aptly named phagocytes. Wandering phagocytes, whether in the blood, the tissues, or in the alimentary canal, are able to devour and kill morbid germs such as micrococci, bacilli and bacteria, and they appear to check the reproductive processes of these micro-organisms. Moreover, like their prototype, the amœba, they can ingest and digest small particles of food debris which may have lodged, for instance, in small crevices and pits of the teeth; they therefore well deserve the name of scavengers, and the various tonsils may be compared to police barracks, continually sending out small detachments of constables in order to clear away nuisances and hold in check micro-organisms, scavenging on the phagocytes or salivary corpuscles, flushing with alkaline saliva, and the scouring of the teeth by the lips and tongue are the three principle precautions adopted by nature for the prevention of those chemical and microbic processes in the mouth which lead to caries of the teeth.

It is easy to understand that in chronic disease and enlargement of the various tonsils, whether antecedent or subsequent to dental caries, that the supply of phagocytes is diminished, and the contamination of the oral fluids unchecked quite apart from the superadded evil influences from mouth-breathing.

From a consideration of the subject matter of this communication I think we are right in concluding that the health of the teeth, as also of the pharynx depends upon normal nasal respiration. Diseased conditions of the teeth may lead to abscess or suppurative catarrh of the antrum, to the presence of foreign bodies, such as teeth calculi and portions of necrosed bone in the nasal, or in the antral, cavities, and also to morbid lesions of the absorbent organs, including enlarged faucial, lingual and pharyngeal tonsils, chronic granular pharyngitis and inflammatory enlargements of the glands of the neck. On the other hand, rhino pharyngeal disease may lead to antral suppuration which may in turn affect the adjacent teeth, producing alveolar and dental abscess, or if mouth-breathing is established, we may expect frequently to find as results, stunted and misshapen maxilla and mandibles, contracted and vaulted palates, dryness of the mouth, with acid oral secretions further deteriorated by the pressure of pathogenic micro-organisms, and the scarcity of phagocytes or scavengers.

ESSAYS FOR THE WORLD'S COLUMBIAN DENTAL CONGRESS,

TO BE HELD IN CHICAGO, 1893.

It is the aim of the World's Columbian Exposition "to gather together evidences of the material progress, achievement and civilization of the world, and so arrange them that every department of human endeavor may be studied and examined through all its various grades of development." In recognition of the important part which the growth and professional development of dental science and art have contributed to the world's progress, the holding of a "World's Columbian Dental Congress" under the auspices of the World's Congress Auxiliary has been provided for by a duly authorized General Executive Committee, appointed by the dental profession of America through its two governing dental organizations. The undersigned Committee, being intrusted through authority of the General Executive Committee with the duty of soliciting essays appropriate to the "Division of Dental and Oral Surgery," and realizing the necessity and great importance of a proper presentment of the literary and scientific phases of our profession through the contributions

of the representative men, would earnestly and respectfully invite you to contribute a paper directly or collaterally connected with the above-named department, and submit it to this Committee at least three months previous to the convening of the Congress, the date of which will be August 17, 1893. All essays must be in the hands of the Committee at the time requested, in order that opportunity shall be afforded for their arrangement and assignment to appropriate Sections. Those contributions earliest received will, of course, take precedence. The appended list of topics has been prepared by the Committee on Essays, and is offered not as restricting in any degree the range of subjects, but in the hope it may be useful in a suggestive way. The Committee specially desires that an early answer to this request shall be forwarded to the chairman, stating whether you will prepare a paper or not. If you accept the invitation, please furnish with your acceptance, if possible, the title of your paper. Forward all communications to the chairman of the Committee on Essays, Lock Box 1615, Philadelphia, Pa.

DR. EDWARD C. KIRK, *Chairman, Philadelphia, Pa.*

DR. J. W. WASSALL, *Chicago, Ill.*

DR. A. H. THOMPSON, *Topeka, Kas.*

DR. H. H. JOHNSON, *Atlanta, Ga.*

DR. L. G. NOEL, *Nashville, Tenn.*

DR. C. NEWLIN PEIRCE, *Philadelphia, Pa.*

GENERAL TOPICS.

Dental Anatomy and Histology.	Orthodontia.
Physiology and Histology.	Ethics.
Dental Medicine and Pharmacology.	Dental Education, including Post-Graduate Work.
Chemistry and Metallurgy.	Instruments and Appliances.
Dental and Oral Surgery.	Statistics
Dental Therapeutics.	Nomenclature and Terminology.
Operative Dentistry.	Dental Legislation: its Local, National, and International Relations.
Mechanical Dentistry and Prosthesis, including Crown- and Bridge-Work.	Dental Professional Organization for Protective and Educational Ends.
Bacteriology.	Miscellaneous.
Pathology.	
Prophylaxis.	

SPECIAL TOPICS.

What is the Best Means of Arresting Decay in the Deciduous Teeth?
 What is the Best Prophylactic Treatment for the Teeth of Pregnant Women?

The Importance of Considering and Providing for the Comfort of the Patient during Dental Operations.

The Selection of such Instruments and Appliances as will Perform the Necessary Work with Least Pain and Irritation to the Nervous System.

The Best Means of Conserving the Health of Dentists.

The Present Status of Crown- and Bridge-Work; What is its Future?

What are the Best Means of Repairing Fractured Porcelain Facings in Crown- and Bridge-Work?

What are the Best Means of Securing Comfort and Rest to the Patient during Dental Operations?

Corrective Dentistry: Its Present Status; What are the Best Regulating Appliances and Best Forms of Retainers?

The Importance of Extracting some Teeth from the Crowded Arches of Young Patients. What Teeth shall be Extracted, under what Circumstances and when shall they be Removed?

Nitrate of Silver as a Means of Arresting Decay in Deciduous Teeth.

The Effects of Hereditary Diseases of the Brain and Nervous System upon the Formation and Arrangement of the Teeth: To what extent are these Abnormalities evidenced by the Teeth of Patients in Hospitals for the Treatment of such Diseases and in Asylums for Imbeciles and Hospitals for the Insane?

Rheumatism and Gout; the Part they play in the Abrasion and Erosion of the Teeth.

What are the Effects of Syphilis upon the Teeth? Have we Marks and Tracings of this Disease in the Teeth of Children born of Syphilitic Parents? Do such Children live to complete the Second Denture?

Are White and Yellow Spots upon the Enamel of Permanent Teeth caused by Alveolar Abscess the Result of the Death of the Pulp in the Deciduous Teeth, or are they Sequelæ of Zymotic Fevers?

Rapid and Extensive Absorption of the Alveolar Processes produced by the Continued Wearing of Vulcanized Rubber Dentures: To what extent is this evidenced by Comparisons between Cases wearing Vegetable and Metal Plates?

On the Use of Stimulants and Anodynes to prepare Patients for Dental Operations.

On the Sterilization of Dental Instruments: The Best Means and Appliances for this End.

On Obtunding Agents: Local Anæsthetics and General Anæsthetics.

On the Best Methods of constructing Lower Partial Dentures.

Diseases of the Antrum of Highmore, and Treatment.

The Treatment of Pulpless Teeth: What is the Best Filling-Materials for the Roots and Pulp-Cavities?

On the Lighting of Dental Offices: What is the Best Color for the Walls and Ceilings of the Dental Operating Rooms?

On Electrical Appliances for the Dental Office and Laboratory.

The Formation of Pus.

What is the Function of the Leucocyte?

Microscopic Research in the Domain of Dental Caries.

On the Etiology of Dental Caries from the Standpoint of the Chemist.

On the Construction and Destruction of Soft and Hard Tissues: The Differentiation between Life and Death.

What are the Best Antiseptic and Germicidal Remedies in the Dental Pharmacopœia? and How to Use Them?

MISSISSIPPI DENTAL LAW.

FOLLOWING is the text of the new dental law Regulating the practice of Dentistry in the State of Mississippi, that went into effect on the first of November:

SECTION 1. Every person who desires to practice dentistry in the State of Mississippi must obtain a license to do so as hereinafter provided.

SEC. 2. A Board of Dental Examiners is hereby created, to consist of five practicing dentists, who shall be appointed by the Governor, and whose term of office shall expire with that of the Governor appointing them.

SEC. 3. Each person appointed as a member of the Board of Dental Examiners shall qualify by taking the oath prescribed by the constitution for State officers, and shall file a certificate thereof in the office of the Secretary of State, within fifteen days after his appointment.

SEC. 4. After the members of the Board of Dental Examiners have qualified they shall meet at the capital of the State, in pursuance of a call to be made by the Governor, and organize by electing a President and Secretary of the Board from among themselves.

SEC. 5. Every person who desires to practice dentistry must apply, in writing, to the Board of Dental Examiners for license to do so; and, unless exempted by the provisions of this chapter, must appear before the Board and be examined by it touching his learning and skill in dentistry, and if he be found to possess sufficient learning and skill therein, and to be of good moral character, the Board shall immediately issue to him a license to practice dentistry, which shall be signed by each member of the Board who attends the examination and approves the issuance of the license.

SEC. 6. The Board of Dental Examiners shall meet at the capital of the State on the first Tuesday in April of each year, for the purpose of examining applicants for license to practice

dentistry ; and it shall continue in session until all applicants for license have been examined and their examinations have been approved or disapproved. All examinations, except as to character, shall be upon written questions and answers, and three members of the Board are a quorum for business.

SEC. 7. Applicants for license, who are required to be examined touching their learning and skill in dentistry, must each pay a fee of ten dollars to the Board of Dental Examiners, as a condition precedent to examination, which fee shall be distributed among the members of the Board as their compensation, in such proportion as the Board may allow.

SEC. 8. Each person now engaged in the practice of dentistry in this State is entitled to receive a license therefor, without being examined touching his learning or skill in dentistry, if he shall apply therefor within six months after this law becomes operative, and shall pay twenty-five cents for its issuance. If such application be made within the time prescribed and the twenty-five cents be paid, the Secretary of the Board of Dental Examiners shall issue to the applicant a license to practice dentistry, which shall be signed in the name of the Board by him as Secretary.

SEC. 9. Any member of the Board of Dental Examiners may examine applicants, orally or in writing, and issue a temporary license to them to practice dentistry, which shall authorize such practice and be valid until the next succeeding meeting of the Board. But one temporary license shall ever be issued to the same applicant.

SEC. 10. Every person who receives a license to practice dentistry must file it for record in the office of the Clerk of the Circuit Court of the county in which he shall reside, within thirty days after its issuance ; and if he fail to do so, he shall thereafter be liable for practicing dentistry without license so long as the same shall remain unrecorded. When such license shall be filed the Clerk shall record the same in the book in which the licenses of physicians are recorded, upon the payment to him of the lawful fee, and when recorded the original shall be delivered on demand to the licensee.

SEC. 11. If a license to practice dentistry be issued and become lost or destroyed, the Board of Dental Examiners may issue another in lieu of it, upon satisfactory proof of the loss or destruction.

SEC. 12. It is the duty of the Board of Dental Examiners to cause its Secretary to keep a complete record of its acts and proceedings, and to preserve all papers, documents and correspondence received by the Board, and relating to its duties and office.

SEC. 13. Such stationery, blank books and forms as may be needed by the Board of Dental Examiners, in the discharge of its duties, shall be furnished to it by the Board of Public Contracts.

SEC. 14. The Governor may remove any or all of the members of the Board of Dental Examiners, and appoint another or others in place of such as may be removed, and may fill by appointment any vacancy that may occur in the Board.

SEC. 15. Physicians may extract teeth by virtue of their license to practice medicine.

ALL SORTS.

LISTERINE is one of the most perfect solvents for tannic acid that can be found. One ounce of it will dissolve half an ounce of the acid.

A SMOOTH MODEL.—To make a perfectly smooth metal model, in drying out the plaster, smoke it in the flame of a tallow candle and the metal will flow perfectly smooth.—S. B. COOK.

WHEN NEUROTIC TROUBLES EXIST, subcutaneous injections of any kind are always dangerous. So says Dr. Dujardin-Beaumetz. In France, recently, two persons suffering from sciatic neuralgia were treated with antipyrin hypodermically. After the third injection gangrene set in and life was threatened, but by heroic treatment it was averted.

NEURALGIA.—I want to call attention to one form in the absence of all the teeth, that is a neuralgia which comes from an hypertrophy of the inferior dental nerve, in aged people, as it makes its exit through the dental foramen. It is a most common origin of neuralgia and, as in other cases, the neuralgia is not often located at its real seat, but may be located some distance from the point of irritation. The remedy is simple; it is to make a saddle-shaped plate so that the pressure will not be exerted

upon the nerve as it passes out of the foramen to be distributed to the teeth and gums and parts adjacent.—DR. T. W. BROPHY, *Review*.

FIRST AND SECOND MOLARS.—My study of the comparative liability of the teeth to decay at the different periods of life, shows that the first molars are attacked in the first two or three years after eruption, much oftener than any other tooth. But in after years they are attacked less often than the second. If both the teeth are in a fair condition at the age of fifteen, the chances for the first are better than those of the second. Decay occurs on the surface of the second molar much oftener than in the same locality in the first, and is much more difficult to treat.—DR. G. V. BLACK.

DEATH UNDER PENTAL.—The death of a German opera-singer is reported by the *British Medical Journal*, July 9, 1892, to have recently occurred after the administration of pental for the extraction of a tooth. Eight or ten drops were given upon a face-piece and the tooth removed, whereupon the patient fell back with a loud shriek and never recovered consciousness, attempts to restore animation proving of no avail. The official examination showed that the brain, lungs and vessels were healthy. There was, however, some amount of fatty degeneration of the heart, and death was attributed to syncope, probably due to the condition of that organ.

A USEFUL INSTRUMENT.—Recently I was in a medical supply house in Indianapolis, intending to get a tongue depressor for use in the diagnosis of throat affections. They handed out a tongue depressor that immediately caught my fancy. The instrument is held, not by the operator, but by a spring pressing against the lower jaw, holding the tongue in the bottom of the mouth. It just struck me that this would be a good thing to use in operations about the lower teeth where I did not care to adjust the rubber dam. I have tried it a few times, and it works admirably. I can keep the saliva out in operations of fifteen or twenty minutes, and find the article very useful.—DR. G. E. HUNT, *Ind. So.*

FIRST PERMANENT MOLAR.—I believe these teeth to be more susceptible to thermal changes when metallic fillings are used,

than any other teeth. I have found it so, at least, and as before said have lined the larger cavities with the oxyphosphates. I believe the pulps of these teeth are more susceptible and more tender, in the first few years after their eruption than in any of other teeth. When these teeth (particularly in the first two, possibly three years after their eruption) are studied histologically, and their nature and resources are well understood, the universal verdict will be, that when taken in time and properly watched, it will be the fault of the dentist and not the teeth, if in most cases they cannot be saved.—DR. J. H. WOLLEY, *Review*.

DISSOLVING DEAD BONE BY MEANS OF ACIDS AND FERMENTS has given a sufficient number of good results to make its use by the profession more general.

The best formula for this purpose is the following:

R Pure scale Pepsin, \bar{z} ss.

Nitro-muriatic acid, \bar{z} i.

Distilled water, Oi.

M. Inject two drachms into the sinus, so that it will come in contact with the dead bone twice a day.

The sinuses should be prepared for this dissolving solution by being carefully washed out with a half-strength solution of peroxide of hydrogen. If the finger of the operator is held over the sinus after the acid solution is injected the fluid can be retained for some minutes without causing much pain.—*Ex.*

TETANUS DUE TO HYPODERMIC NEEDLE.—An instructive case is reported in a recent number of the *British Medical Journal*. A patient who had been in the habit of injecting morphine hypodermically into himself, came under observation with symptoms of tetanus, which eventually resulted in death. A careful search revealed no other cause for the tetanus than a small inflamed and suppurating place near the shoulder, which had been caused by one of the hypodermic injections he had given himself. The lesson taught by this case of the importance of the observance of scrupulous cleanliness, even in so small an operation as a hypodermic injection, cannot be too strongly impressed, and the memory of the disastrous effects which may result from the neglect of proper precautions should be firmly fixed in the mind of every practitioner.

PERFUME FOR THE BREATH.—A very fine preparation for perfuming the breath is the cachou, which usually consists mainly of liquorice extract and essential oils. The following formula will serve as a typical one:

Powdered extract of liquorice,	-	-	3 ounces.
Refined sugar,	-	-	1 ounce.
Powdered tragacanth,	-	-	$\frac{1}{2}$ ounce.
Oil of cloves,	-	-	1 dram.
Oil of cassia,	-	-	$\frac{1}{2}$ dram.

Beat together with water enough to form a stiff mass, which make into very small pills or lozenges, as desired. These are usually coated with silver leaf by being rolled in it while still moist.—*Off. and Lab.*

FLEXIBLE RUBBER PLATES.—Herewith I give you the result of a little experiment in thin, flexible rubber plates: Wax up the case in the usual manner. After trying in the mouth to see that it is correct, fasten the outer rim solidly to the cast with wax, then cut out the wax from palatal portion and burnish tea leaf in its place, letting it come up well around the teeth. Flask as usual, and after washing out the wax and removing the lead, apply dry heat to the case to dry the surfaces, then paint with liquid silix; the heat of the case will soon dry the silix. Make a good large gate at heel for surplus rubber, and pack the same as for thick plate, using black rubber for palatal portion. Care must be exercised in cutting away surplus, not to split the thin rubber. The polishing can be done with brush and cotton wheels. No scraping or sandpapering necessary. This makes a much pleasanter plate to wear in the mouth, and gives better satisfaction to the wearer.—W. G. STOWELL, *Review*.

ROOT CANAL CLEANSER.—We have received from Messrs. Weist and Schwarz, of Vienna, a preparation for removing the decayed matter in the root canals of teeth. It is introduced by Dr. Emil Schreier, who states that it is composed of potassium and sodium, and that it acts upon the decayed matter in a root by decomposing it. It produces a high temperature during the process, and effervesces, transforming the contents of the root canal into a soapy mass, which is easily removed, at the same time it renders the canal proof against the cultivation of new germs. It is applied with a canal cleanser, and the operation is

to be repeated until no further chemical action takes place. Dr. Schreier states that after this preparation has been applied to the canal it is immaterial whether any particles of matter remain, as they are rendered harmless. He cautions dentists against the too frequent use of the same cleanser, as the preparation acts upon the steel and is liable to make it brittle. Air decomposes the material, but the oxidation is confined to the surface only; he recommends that the cork shall be pushed down on to the preparation each time after using; the bottles are made without necks for this purpose.—*Dental Record*.

REFLEX NEURALGIA.—In regard to neuralgia, I remember an incident that happened several years ago, where I filled the canals of a first lower molar. A year or two afterward the patient returned with intense pain in that particular tooth; I felt chagrined. She had been under a physician's care for several days, who dosed her heavily with quinine. The only way the pain could be kept anywhere within comfort was by giving very large doses of quinine. I removed the filling, removed the contents of the root canals, found everything clean and sweet, no pain that I could produce by percussion or probing until I got clear through the apex of the roots, and that only as one would from pricking healthy tissue. I was sure that tooth was not the seat of the trouble. Then I made a careful examination between the teeth to see if I could not find exposure, wedging successively; getting between the lower teeth on that side, I failed to find anything the matter. Then I commenced on the same side above, and finally found a small mesial opening and an exposure of the pulp of the wisdom tooth. The moment the pulp was touched it located the seat of the pain, and it was the first time it had been located by either the patient or myself since the neuralgia had commenced, some two weeks previous. Upon opening it up and treating the pain ceased. That was my first practical knowledge of the fact that the feeling of pain to the patient might be very distant from the point of lesion at which the pain really existed.—DR. D. M. CATTELL, *Review*.

AN AGREEABLE AND USEFUL SOLUTION.—In practice I have found the following solution admirably suited for use in the mouth in various ways. For rinsing purposes, 6 or 8 drops in half a glass of water. To be used for rinsing the mouth before

or during various operations, especially scaling and cleaning of teeth. It is pleasant to the taste and antiseptic in its action. A few drops mixed with the powdered pumice used for cleaning, not only makes it more efficient, but renders it an agreeable application. It will be found useful in stronger solution than above for rinsing purposes after extraction of teeth. It is also an efficient and agreeable liquid dentifrice. Being pleasant, its use is appreciated by patients, especially where it disguises a disagreeable odor or taste:

R	Benzoic acid,						
	Orris root,						
	Cinnamon, pv., ää	-	-	-	-	1	oz.
	Soap bark,	-	-	-	-	2	oz.
	Tannic acid,	-	-	-	-	1	dr.
	Borax,	-	-	-	-	20	gr.
	Ol. wintergreen,	-	-	-	-	30	m.
	Ol. peppermint,	-	-	-	-	1	dr.
	Cochineal,	-	-	-	-	3	dr.
	Sugar,	-	-	-	-	4	oz.
	Alcohol,	-	-	-	-	12	oz.
	Water,	-	-	-	-	20	oz.

Mix; macerate six days and filter.

—L. P. BETHEL.

METHOD OF ENAMELING GOLD CROWNS.—After the gold crown is made and fitted to the tooth in the mouth, the sides properly stiffened, the cusps or incisive edge strengthened, it is boiled in acid and then adjusted in the mouth, and the portion of the labial section which is exposed is outlined on the surface of the gold. The crown is then removed, the marked area ground quite thin, and then perforated with a spear-pointed drill. The crown is again adjusted in the mouth, and the thinned labial section depressed to make all the room required for the inlay. The crown is then removed, and glass filling material of the proper shade is mixed with water to the consistence of paste, a small portion of which is spread over the depressed surface of gold. The surplus moisture is then extracted with a napkin, and any dry particles of the material which may have fallen on the gold removed with a dry camel's-hair brush. The crown is then placed with the enamel upward in a small platinum muffle having a de-

pression in its base to hold the crown steadily. The inside of the muffle is coated with whiting. The muffle is then placed on a charcoal soldering-block, and gradually heated up with a gas blow-pipe, blowing the flame against the closed end. A light red heat will fuse the enamel. The crown is then removed, sufficient enamel added to give proper form to the part, and the fusing repeated. The surface of the enamel is then ground level and smooth, the edges finished and the dust removed, after which any pits or inequalities are filled in, the surface being coated by means of a brush with enamel material mixed quite thin, and the fusing again repeated, the heat being carried to a higher point than at the previous fusing. The result is a dense, smooth inlay of enamel. The enamel is applied in successive layers, and the color is very well controlled, though not perfectly; but the result is not so objectionable in the mouth as a gold crown or a discolored tooth. The melting of the crown is avoided by turning the open end to the operator, and directing the heat at the back of the crown. You will probably melt a crown or two at first in finding out just how to manipulate it, but a little practice makes perfect. The alloy used is three or four per cent. of platinum to gold of .997 to .999.—DR. GEO. EVANS, *Amer. So.*

DENTAL LAWS.—The Alabama law does not recognize diplomas, all are required to pass examination, (*Catching's Compendium*, p. 226). Similar laws prevail in Georgia, Maine, Massachusetts, Mississippi, New Hampshire, North Carolina, South Carolina, Tennessee, etc. These States have laws placing the non-graduates on a level with the graduates in that all are required to pass the examination. There is no incentive to attend college, as its honors are not recognized. That policy can only result in degrading college education, which is the danger against which we are endeavoring to warn you. If the college education goes, all education goes. If the diploma loses its honor and dignity, there will be little incentive to young men to attend lectures and obtain the education which the experience of the profession has demonstrated is the best and most useful.

Diplomas are recognized without examination in Arkansas, California, Delaware, Indiana, Iowa, Louisiana, Kansas, Maryland, Michigan, Missouri, Nebraska, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee,

Texas, Vermont, Washington, West Virginia, Wisconsin, etc. That is the perfect system when the colleges shall have become perfect,—i. e., the recognition of diplomas for what they were intended, the truthful certificate of the holders' ability to practice. But in the present state of the frailty of human nature in general and of dental colleges in particular, the system of the examination and license of graduates only is the best policy. This prevails in the following States: Florida, Minnesota, New Jersey, Virginia, and perhaps others. There may be some errors in this rough classification, as Catching's list is incomplete and his synopsis of laws imperfect. But enough has been given to show the drift of legislation, and that the danger of placing the Board examinations on a par with college education, is very real. Against this we would raise a warning cry, for it is a menace to all that is good in dental education.—A. H. THOMPSON, *Western D. Journal*.

THE TREATMENT OF DISORDERS OF THE TEETH DURING PREGNANCY.—In the *Birmingham Medical Review*, Elliott describes several diseased conditions of the teeth and gums occurring during pregnancy. In anæmic patients the gums become thin, pale, and shriveled in appearance and retracted from the edge of the teeth; a prominent ridge is often seen near the free border. In other cases the gums are full and reddened, apparently deeply congested and containing pus, which exudes on pressure.

An important factor in producing caries of the teeth is the altered condition of the secretions; their reaction becomes acid instead of alkaline, which favors markedly the disintegration of the teeth. Caries of the teeth is often accompanied by a brownish discoloration on the labial surface of the tooth, following the outline of the gum; the enamel is brittle and opaque. The upper bicuspid and molars are often carious, the dentine being softened but not discolored. The lesion in these cases is caused by the fact that the tongue lies frequently in contact with these teeth, and its acid mucus and matter vomited come frequently in contact. In anæmic patients "white" or soft caries accompanied by absorption of the alveolar process is observed; the teeth become so loosened as to frequently come out.

Neuralgic pain in or about the teeth is sometimes so severe as to delay labor. Hysterical pain in the teeth sometimes ex-

tends to several, may be fixed in two sound teeth, or may shift from side to side.

As regards treatment, quinine and opium may be used when the gums are anæmic; ammonium chloride and aconite when full and congested. Chlorate of potassium and potassium bromide are efficacious in irritable gums and teeth. Equal parts of charcoal and prepared chalk are useful as a local application to irritable teeth and gums. In reflex pain in the teeth and gums a blister three by one inch in size applied over the fourth and fifth dorsal vertebræ, often affords relief. When pain in the teeth is constant and depressing, removal under an anæsthetic is indicated.

GREEN-STAIN.—Green-stain is a discoloration or stain, greenish in color, found upon the labial, buccal, and occasionally upon the palatal surfaces of teeth. In the mouths of uncleanly persons it would be difficult, perhaps, to indicate a more direct cause than the constant contact of putrefying food. In the mouths of those who would claim to be of cleanly habit, I think I can explain more exactly the presence of this dangerous stain. First, it is to be observed that *the stain is more common upon the teeth of children*; and secondly, that *it will be found more frequently upon the upper than upon the lower teeth*. Both of these are clinical facts which harmonize with my theory. If we pour milk from a glass, we observe that the surface of the glass is left smeared with an oily residuum. Necessarily the same must occur when one drinks milk, allowing it to flow over the enameled surfaces of the teeth. Children drink more milk than their elders, which explains why the green-stain is more common with them; and as the tumbler or cup is placed to the mouth, the edge rests upon the lower lip, which in turn covers and protects the lower teeth, so that the fluid passes into the oral cavity, flowing more freely over the upper teeth than the lower. Thus we should anticipate the stain more often above than below. It is my belief that the fermentation of this residuum from the milk, which adheres to the enamel, produces the green-stain. I have adopted this theory after many years of inquiry, during which I have found more than ninety per cent. of those exhibiting the stain, whether children or adults, admitting that milk formed a large part of their diet. Moreover, I have in a way proved the

theory, by having such patients promise to cleanse the teeth thoroughly with brush and hot water after their milk, the result being that the stain has not recurred where the advice has been followed. This I think a sufficient connection between the two as cause and effect, though I do not make the claim that green-stain may not be possible as a consequence of other ferments.—
R. OTTOLENGUI, *Cosmos*.

PENTAL.—Among the first authorities who recognized the extreme importance of pental as an anæsthetic in minor surgical operations of short duration, the readers of these columns will remember that Professor Hollænder on several occasions warmly recommended pental in dental practice. He has now published the results of a year's experience with the anæsthetic, during which time Professor Hollænder has employed pental to produce narcosis in 900 cases. He has found that pental is in every case a reliable and certain anæsthetic, in this respect differing from ethyl bromide, which is ineffectual with some persons. Anæsthesia is attained more slowly than with the latter narcotic, but is of longer duration, and the patients recover consciousness more gradually. Cases in which even the slightest excitation followed administration of pental occurred extremely seldom, and in all his long experience Prof. Hollænder has never observed any symptoms of stomachic disturbance, squeamishness or sickness, still less aphasia, trembling or trismus as after effects. Neither the pulsation or respiration is accelerated during administration, but especially in the case of anæmic persons the pulse sometimes becomes weaker, whilst in the case of patients in a very excited state it becomes stronger. 2 to 3cc. of pental frequently suffice to produce unconsciousness with persons of calm temperament, and in nearly every case 10cc. produces a narcosis of sufficiently long duration to permit the extraction of 5 to 10 teeth.

The best method of administering pental is, in Prof. Hollænder's opinion, attained by the employment of Junker's apparatus which possesses the advantages of allowing the operator to regulate the passage of the vapors into the lungs and of preventing the vapors reaching the eyes, so that not only is less pental used, but its unpleasant odor to which some patients object, is less evident. It may also be interesting to mention that at present

Professor von Mering is conducting some experiments with a view of covering the odor of pental by the admixture of some other preparation. Narcosis as a rule occurs in one to three minutes, without producing the slightest change of expression in the face, when properly administered. Notwithstanding the advantages of pental, however, Prof. Hollænder thinks that it should not be administered without taking all the precautions required for any other anæsthetic, and an assistant should be present to watch the respiration and general conditions of the patient, since it is impossible for a surgeon to give his whole attention to the operation and at the same time observe the entrance of any unpleasant or even dangerous symptoms. Caution is especially advised with very excitable or strongly anæmic patients, but Prof. Hollænder retains his opinion considering the reliable action of the anæsthetic and the almost astounding good condition of the patient on recovery, that pental is the best anæsthetic for all operations occupying only a short time.—*Notes on New Remedies.*

“THE CONSTITUTIONAL EFFECTS OF RETARDED ERUPTION OF THE WISDOM TEETH,” paper by Mr. Hutchinson.

Discussion having been invited by the chairman, MR. VANDER PANT asked Mr. Hutchinson how he would diagnose cases of mischief due to impacted teeth, when such cases were unaccompanied by pain.

MR. H. BEADNELL GILL thought it might interest members if he narrated a case of epilepsy due to the irritation of diseased teeth, in which the epilepsy had ceased upon the removal of the diseased teeth under the influence of gas. The patient, whose teeth were undoubtedly syphilitic, had had fits from infancy, and his father told him the temporary teeth had all decayed away. He saw the patient at the age of 21; the extractions were done ten months ago, and the patient had had no seizure since then.

MR. J. E. WELCH mentioned that he had discovered some impacted wisdom teeth in the mouth of a lady 50 years of age, and who had been under medical treatment for two years. Some of the teeth were not fully calcified, but were really minus the roots.

MR. REINHARDT asked under what condition the reader of the paper would advise the removal of the second bicuspid in cases of obstructed eruption of the wisdom teeth.

MR. MORGAN HUGHES asked whether Mr. Hutchinson thought it necessary in all cases, where trouble arose from the upper wisdom teeth impinging on the lower gum, to extract the teeth, and whether the desired relief could not be obtained in many cases by grinding off the offending cusps, provided that the patient would stand the latter process.

MR. OCTAVIUS FOX mentioned the case of a hard-worked East End clergyman. He was very much out of health, was partially paralyzed on one side, and could not put his right hand to his head. He was unable to study or write. Mr. Fox suspected an impacted wisdom tooth. The second molar was extracted with some difficulty, as it was malplaced, with the result of complete restoration to health. In another case a lady was to all intents and purposes out of her mind from the agony she suffered from an unerupted wisdom tooth. In that case he gave relief by freely lancing the thickened gum over the buried tooth.

MR. J. F. RYMER asked Mr. Hutchinson if he would define what he meant by the retarded eruption of wisdom teeth, because it seemed to him that it was only in recent years that these constitutional effects had been attributed to that cause, and he supposed in the future they might expect to hear of many more such effects.

The CHAIRMAN (Mr. Dennant) said that no doubt, if time permitted, they could bring forward many interesting cases out of their experience, but he was afraid he must close the discussion by calling upon Mr. Hutchinson to reply.

MR. HUTCHINSON said that Mr. Van der Pant had asked a very pointed question, as to whether all the cases were attended with pain. In most of those to which he had referred there was no pain, and sometimes the evil was not even referred to the mouth of the patient, that was important, and added interest to that class of cases. As to the methods of treating a case of impacted wisdom teeth, of course each should be dealt with on its own merits. His answer to Mr. James Rymer's question as to what he meant by retarded eruption of the wisdom teeth, was that when a patient between the age of 18 and 25 had no wisdom teeth at all, where there was absolutely no space for the wisdom teeth, or where the six-year-old tooth not having been extracted there was evidently not sufficient room for the wisdom teeth to come through, and in other cases where the teeth were not visible because there was no space for them. In some cases where he had a distinct history of epilepsy or hystero-epilepsy, he unhesitatingly removed the second lower molar, and though he did not say that he would invariably adopt such treat-

ment, he considered he was in many cases justified in doing so. As to the second bicuspid, in cases where a little space was wanted, he had removed the four second bicuspid in order to relieve the pressure, which he believed was the cause of, the reflex irritation. As to upper wisdom teeth pressing upon the lower gum, his experience was that when the upper wisdom tooth was cut before the lower one, it came to a lower level than the other teeth—perhaps about one-sixteenth of an inch below the second upper molar—and in these cases he was distinctly of opinion that it was better to extract the tooth than to grind the cusps, because the tooth would continue growing down, and if the gum was already irritated the radical treatment was better. Mr. Gill's was a very interesting case, though perhaps scarcely bearing upon the subject of wisdom teeth. He should like to hear the sequel—whether the young lady remained free from epileptic seizures, whether they entirely disappeared, and whether they would reappear when the wisdom teeth were coming through. —*Jour. Brit. Assoc.*

BRIDGE-WORK.—DR. MORGAN: I am willing to give you the benefit of what little experience I have had in bridge-work, and more particularly from observation. I have been interested in the subject since the year 1879, when I saw the first all-gold crown that I ever saw. Like Dr. Turner, I disagree with those who follow the practice of adjusting bridges that rest upon the gum, or make what is sometimes called the saddle bridge. Saddle bridges, or bridges that are adjusted right over the molars or bicuspid or cuspids, it is impossible to keep clean; I believe it was Prof. Taft who said that he never got within three feet of a person wearing them that he could not detect the fact from the odor of the breath. I do not, in my own practice, undertake to make a bridge where I have not two abutments. I must have a lodgment at each end. The day of the insertion of ten, twelve and fourteen teeth upon three, four or five teeth is past and gone and those bridges are now put in in sections.

None of us will deny that we have yet determined no fixed set of rules by which we may adjust these bridges. A bridge that has more than one tooth beyond its point of anchorage, is in my opinion a very risky piece of work. We all have our peculiar modes, some having very much shorter cuts than others; some doing the work as we saw here yesterday at one sitting, while others arrange their points of anchorage and afterwards adjust it on a model, having the piece finished up for insertion in the

mouth after its completion. We had shown us at Morehead City last summer what was termed by Dr. Marshall the "anchor plate." Since then I have interested myself somewhat in these anchor plates, and as it seems, from those with whom I have talked since being away, that they are not very generally used or understood by us, that might be of more interest to you than a discussion of the bridge.

The anchor plate is a plate that is made removable. Where there are one or two teeth remaining in the mouth we change our parallel and cap with crown; after that a band of gold is telescoped over the teeth and the plate is anchored to these telescopes, so that when the plate is removed from the mouth, or when the plate is inserted, the point of bearing is not upon the crown tooth so much as it is upon the jaw. Possibly the citation of a single case would be of more value than mere dealing with generalities.

A case presented itself at the office. A gentleman whose anterior teeth below was all that remained except the second bicuspid on the right side. Those anterior teeth were extracted, the first bicuspid having been lost some time previous; the second bicuspid on the right with the cuspid on the left were gone. An impression was taken after having the crown in position. From this impression a model was made; bands were made to adjust themselves to the crowns, and the plate carried into the mouth and the bands telescoped over the crowns. An impression was then taken with the plate and bands in the mouth. A model of fine clay was run. Upon the anterior portion six teeth were placed by soldering. This was better because of the solidity that it gave to the plate. The posterior teeth—the molars—were put on with rubber, and Gilbert's Granular gum was put on. It was then, when finished up, ready for insertion, and I am satisfied that nothing that could have been done for this gentleman could have been so serviceable. The resting was perfectly firm, and in some instances the teeth that were comparatively loose under this treatment became quite firm and steady, even if they had been previously affected with *Pyorrhœa Alveolaris*. It seems to be the case in my practice that teeth which have been suffering with *Pyorrhœa Alveolaris* and which have been capped with the gold crown, which I regard as the greatest contribution to dentistry since the war, that teeth that have been loose become firm, and

that frequently if the cap has been thoroughly and properly adjusted with due skill, so that there is no impingement on the gum, and the most of those with whom I have talked say that they can better adjust those that are manufactured than those that they make themselves. These teeth, I say, that are quite loose will become quite firm and steady in their positions. In the manufacture of these plates all pressure is relieved from the gum. All of you who have had an opportunity of observing the old-fashioned clasps remember how the clasps just at the neck of the tooth irritated the gum. In making these anchor plates, we get rid entirely of that difficulty, and in those that I have had an opportunity of observing, that have been in the mouth for six or eight months, the gum is perfectly healthy.—*So. D. Jour.*

EDITORS' SPECIALS.

THE OHIO DENTAL JOURNAL FOR 1893.

A NUMBER of changes are being made in the JOURNAL for the coming year, by means of which we shall be able to present our readers with more interesting and profitable reading matter than ever before. We might go on and give many special features of the coming volume, but will let the January number explain itself. It will show you better than anything that can be said, just what you may expect each month. We feel confident that the changes made will meet the approval of every subscriber.

L. P. B.

OBITUARY—DR. ROBERT VAN VALZAH.

DR. VAN VALZAH died at his residence in Terre Haute, Ind., on Sunday, Oct. 23d, 1892, the immediate cause of death being Bright's disease and dropsy.

He was born at Lewisburg, Penna., in 1842, and was the son of William Van Valzah. When not yet of age he began the study of dentistry under Dr. R. E. Burlan, with whom he remained two years. He then went to Philadelphia and engaged with Dr. J. D. White, Emeritus Professor of dentistry, in the Pennsylvania college. In 1863 he entered the Union army, enlisting in Company A, 28th Pennsylvania Volunteer Infantry.

In the spring of 1864 he became a resident of Terre Haute, where he has since resided, engaged in the practice of his profession, which he began shortly after his arrival. In 1868 he was elected a member of the city council, which office he held one term. In 1871 he became an officer in the Grand Lodge of A. F. and A. M. of the State of Indiana, and in 1878 was made Grand Master of that body, retiring in May, 1879. In 1878 he was elected a member of the Board of Trustees of the city schools for three years, he being President of the Board. In the same year he was also elected a member of the State Legislature. In June, 1879, when the Indiana State Dental College of Indianapolis was organized, he was appointed Clinical Instructor. He was also First, Vice-President of the Indiana State Dental Association.

The Doctor has always taken a deep interest in the Masonic Lodge, and was one of the most widely-known Masons in the country. At the time of his death he held several offices of honor in the Masonic Lodges of Terre Haute. He was Sapiient Screecher of the Owls, and was Senior Sagamore of the Red Men's Tribe. He was Past General Grand Captain of the Guards of the General Grand Council of Royal and Select Masters of the United States.

Until he was overtaken by illness, he was engaged in the practice of dentistry, his office being in the opera house. He was a cousin of Dr. Robert W. Van Valzah, dentist at Fifth and Main streets. Dr. Van Valzah leaves two children, Robert Van Valzah, Jr., and Miss Catharine VanValzah.

The funeral services, held on Tuesday, Oct. 25th, were conducted by the officers of the Masonic Grand Lodge of the State, of which he was Past Master.

REPORT ON NECROLOGY.

The following testimonials and resolutions were presented, read and adopted at the recent meeting of the American Dental Association :

IN MEMORIAM—DR. JOHN ALLEN.

In the disposition of an all-wise and over-ruling Providence Dr. John Allen, of New York, on the 8th day of March, 1892, at the age of eighty-two, passed from this to a higher and better

life; having attained a fullness and ripeness of age beyond that of the common lot of men.

Dr. Allen stood as a representative man in the profession of his choice.

In the line to which he gave special attention he was the chief, and was so recognized not only in this, but in the countries of the world wherever prosthetic dentistry is known and practiced. He, it was, who brought to its present high state of perfection that variety of substitutes known as continuous gum dentures.

Though his chief attention and labor were devoted to this special work he was interested and took part in the various lines of thought and effort that were employed for the development, growth and establishment of dental science and art. He was ever ready to defend, and sought to elevate the profession to a higher plane of usefulness.

Dr. Allen was one of the organizers of the Ohio College of Dental Surgery, a professor and an efficient teacher in that institution.

In the subject of dental education he always manifested a warm interest. A writer of more than ordinary ability he has added many valuable contributions to the literature of the profession.

He was an active member of this association from almost the time of its organization and did much to promote its welfare. He was also a member of, and an active worker in a number of other dental societies.

Dr. Allen was a man of purest character and highest integrity; one not only respected but loved by all who knew him; in manner most affable; in bearing dignified; in spirit gentle and sympathetic.

The loss of such a one is always an occasion of sadness and sorrow, but we have the consolation of the knowledge that his career was rounded, full and complete, and his death closed a life filled with good works for his fellowmen.

In view of the above,

Resolved, That we will ever cherish the memory of our departed brother and seek to establish and perpetuate the high principles that were so fully illustrated in his noble life.

Resolved, That the traits so pre-eminently characterizing the

life of him we now commemorate are worthy, not only of our high regard, but most earnest emulation.

Resolved, That this testimonial be placed on a memorial page of the transactions of this body and a copy, properly engrossed, be sent to the family of the deceased; also that a copy be sent to the dental journals of this and other countries for publication.

IN MEMORY OF C. A. KINGSBURY, M.D., D.D.S.

Within the last year Dr. Chas. A. Kingsbury was called from this to a higher life, in the seventy-second year of his age.

Dr. Kingsbury many years ago became identified with this association and retained his membership to the time of his death, and though he was not always present at the meetings, so highly was he esteemed by the membership of the body that it was a pleasure to all to have his name upon the roll of members.

Dr. Kingsbury entered the practice of the profession in 1839, in Philadelphia, and continued actively engaged in its pursuit during his life. He studied dentistry in Trenton, N. J. He was intimately acquainted with the leading men of the profession almost the whole of his professional career, and imbibed, in a large measure, the interest and enthusiasm of these men for dental science and art; indeed, that association, in a degree, shaped his professional life. He was familiar with all things that entered into the development and progress of dentistry for about fifty years. He was a man of liberal learning and broad culture; one whose sociability was a predominant characteristic. In his early life he was a teacher, and after many years practice of his profession he was for a time a successful teacher in one of the dental colleges in the city of his home. He was highly esteemed by all who knew him; he was a man of sterling characteristics, genial, kind and sympathetic in his association with his fellows. In his death, not only this association, but the entire profession loses another of the pioneers who was ever devoted to its interests, ever contributing of his resources to its up-building.

Resolved, That we will ever cherish the memory of our departed brother as one whom we delight to honor, and to emulate in his leading characteristics.

Resolved, That this statement and resolution be placed upon the memorial page of the proceedings of this body. That a

copy, in proper form, be transmitted by the secretary to the family of the deceased, and that it be sent to the journals for publication.

NEW PUBLICATIONS.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY. A Manual for Students and Practitioners. By B. S. Beach, M.D., lecturer on Histology, Pathology and Bacteriology, New York Polyclinic. Philadelphia: Lea Bros. & Co., Publishers, 1892; pp. 165. Price, cloth, \$1.00.

This is one of the student's Quiz Series, published by this well known and reliable firm. The series is written by prominent medical teachers and specialists in New York, and is authoritative and up to the times. It derives an advantage over other series by having careful editorial supervision in the person of Dr. B. B. Gallendet, of College Physicians and Surgeons, New York, whereby it is rendered harmonious and complete.

The book before us is written in the form of questions and answers, bringing out the most important subjects in each department. While these compends cannot take the place of text books, they are excellent helpers for fixing in the mind, or recalling to memory, the main facts in the various branches taught. These books are neatly printed and bound, and containing, as they do, essential facts, they should find a ready sale.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by Chas. E. Sajous, M.D., and seventy associate editors. Philadelphia: F. A. Davis & Co., Publishers, 1892. Price, 5 volumes, cloth, net, \$15.00.

This Annual, after five years of publication, is no longer an experiment, but an established work. And why should it not be so? With such a man at the head as Dr. Sajous, and the many eminent physicians and surgeons acting in the capacity of associate editors and correspondents, its success was assured from the start.

Besides original contributions, abstracts are taken from 1,027 medical and dental periodicals, printed during the year, and from 166 books, monographs, theses, etc. It contains everything

of importance that has been brought out in all the various departments of medicine, and so well condensed that the practitioner gets at "*the meat*" immediately; but should any article abstracted be wanted entire, the reference given tells just what journal and issue contains it.

In its scope it covers all departments of medicine and surgery, and is, to the progressive practitioner, an invaluable collection of scientific facts, covering some 3,000 pages.

To do justice to this great work in so limited a space as one, two, or a dozen pages, would be impossible. There is no other publication of the kind equal to it, and we heartily recommend an examination of the work by those who desire to keep abreast of the times.

GOOD ROADS.—In a circular sent us by A. A. Pope we find a copy of a blank petition which has been sent to college presidents, railroad officials, postmasters, etc., requesting signatures. The petition asks for the founding of a Road Department, similar to the Agricultural Department, for the purpose of promoting knowledge in the art of constructing and maintaining roads. Also that there be established a permanent exhibit in which shall be shown sections of roads, illustrating various methods of construction, etc. Also that Congress appropriate funds sufficient for a suitable exhibition building for the Columbian Exposition.

The improvement of roads is a matter of no little importance, and something that everybody having a horse or bicycle should take a personal interest in; at least sufficient to sign such a worthy petition. In case a petition is not at hand send for one to A. A. Pope, P. O. Box B, Boston, Mass., and see that it is properly filled with signatures.

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY for 1892 will be ready for delivery early in January. It contains a compilation of all the practical matter that appeared in the dental journals during the year, condensed and classified. In short, it is a veritable encyclopedia of dentistry; the practical information gleaned from ten thousand pages of journal matter is given in a concise, clear and comprehensive manner. Every dentist should have the work, and if you are not already a subscriber

send your name, address and \$2.50 to Dr. B. H. Catching, Atlanta, Ga. You will not regret it.

Literary Note from Lee & Shepard, Boston, Mass.:

ALL AROUND THE YEAR CALENDAR FOR 1893. Entirely new design in colors, by J. Pauline Sunter. Printed on heavy cardboard, gilt edges, with chain, tassels and ring. Size, $4\frac{1}{2} \times 5\frac{1}{2}$ inches. Boxed.

The "All Around the Year" calendar which Mrs. Sunter sends out this year is as charming a piece of work as anything she has done. Like its predecessors, it is printed on heavy cardboard, gilt-edged, with chain, tassels and ring, and is of convenient size. The designs are fresh and delightful. Done in several colors, one can scarcely imagine anything more graceful than the twelve cards, each bearing the dainty design which includes the month's calendar as a part of the picture. The cover shows a pretty little Miss watching a cupid "warming his pretty little toes" at an open fire-place, while on the last page this same Cupid (or his fellow) is playing sweetly, "Good-by, my Lover, Good-by."

SOCIETIES.

OHIO STATE DENTAL SOCIETY.

THE Ohio State Dental Society will meet at Columbus, Ohio, Dec. 6th, 7th, 8th and 9th, 1892, to which ALL members of the profession are cordially invited to attend and participate in the meeting. There is a large and interesting program being arranged; which will be mailed to any one, on application, whom we may have missed. One day will be devoted entirely to clinics, two days to papers and discussions.

There will be REDUCED RATES on all railroads entering Columbus. *Be sure to ask your agent, when purchasing a ticket, for a certificate, or you can not get reduced rates.*

A. F. EMMINGER,

J. W. LYDER,

C. E. MILES,

Committee.

PROGRAM.

PAPERS.

1. President's Address—J. R. Callahan, D.D.S., Cincinnati, Ohio.
2. Mechanical Abrasion of the Teeth—J. E. Cravens, D.D.S., Indianapolis, Ind.
3. Obtunding Sensitive Dentine—Henry Barnes, D.D.S., Cleveland, Ohio.
4. Sterilization of the Hands and Instruments of Dentists—H. A. Smith, D.D.S., Cincinnati, Ohio.
5. The Breath—J. Taft, D.D.S., Cincinnati, Ohio.
6. A Talk on Things Practical in Dental Practice—J. G. Templeton, D.D.S., Pittsburg, Pa.
7. Post-Mortem Examination of the Dental Pulp—O. Arnold, D.D.S., Columbus, Ohio.
8. Past, Present and Future of the Dental Profession—A. O. Rawls, D.D.S., Lexington, Ky.
9. Exact Dosage in Electricity—E. F. Wilson, A.M. M.D., Prof. of Therapeutics, Ohio Medical University.
10. Empyema of the Maxillary Sinus—F. S. Stillman, M.D., Columbus, Ohio.
11. Compound Radicals—G. A. Billow, A.M. D.D.S., New Carlisle, Ohio.
12. The Past and Future of Prosthetic Dentistry—G. H. Wilson, D.D.S., Cleveland, O.
13. Surgical Treatment of Alveolar Abscess—L. E. Custer, D.D.S., Dayton, O.

CLINICS.

1. A Study Contouring with Gold and Plastics, Construction and use of Matrices and Supports—J. E. Cravens, D.D.S., Indianapolis, Ind.
2. Making Gold Crowns—Grant Mitchell, D.D.S., Canton, Ohio.
3. Clinic and Exhibit of Crown Work—E. M. Cook, D.D.S., Toledo, Ohio.
4. Filling Teeth with Bonwill Mechanical Mallet by Electrical Power—H. T. Smith, D.D.S., Cincinnati, Ohio.
5. Immediate Root Filling—J. E. Cravens, D.D.S., Indianapolis, Ind.

6. Gold Stopping—Bridge Work—W. H. Todd, D.D.S., Columbus, Ohio.

7. Anæsthetics—J. E. Barricklow, Flushing, Ohio.

8. Surgical Treatment of Alveolar Abscess—L. E. Custer, D.D.S., Dayton, Ohio.

9. Aluminum Cast Work—C. C. Carroll, D.D.S., Meadville, Pa.

The entire third day will be devoted to Clinics.

WORLD'S COLUMBIAN DENTAL CONGRESS OFFICERS ELECTED AT CHICAGO.

President, L. D. Shepard, Boston, Mass. *Vice-Presidents*, W. W. H. Thackston, Farmville, Va.; L. A. Northrop, New York, N. Y.; W. H. Morgan, Nashville, Tenn.; W. W. Allport, Chicago, Ill.; W. O. Kulp, Davenport, Iowa.; C. S. Stockton, Newark, N. J.; Edwin T. Darby, Philadelphia, Pa.; H. J. McKellops, St. Louis, Mo.; J. Taft, Cincinnati, O.; J. H. Hatch, San Francisco, Cal.; J. B. Patrick, Charleston, S. C.; J. C. Storey, Dallas, Tex. *Secretary-General*, A. W. Harlan, Chicago, Ill. *Assistant-Secretaries*, Geo. J. Friederichs, New Orleans, La.; Louis Ottogy, Chicago, Ill. *Treasurer*, J. S. Marshall, Chicago, Ill.

OUR AFTERMATH.

[If you have any items of news, personal or otherwise, notices of removals, deaths, marriages, inventions, etc., etc., send them to P. O. Box 363, Xenia, Ohio, or to either of the Editors.]

WORLD'S COLUMBIAN DENTAL CONGRESS, Chicago, August 17, 1893.

OHIO STATE DENTAL SOCIETY, Columbus, December 6, 1892—4 days.

DR. M. M. FESSENDEN, formerly of Hudson, Mich., is now located in Detroit.

DR. E. G. BETTY, Cincinnati, announces his removal to 102 West Eighth street.

DR. S. M. STAUFFER has removed from Kalamazoo, Mich., to Pittsburgh, Penna.

NEIL HOUSE, COLUMBUS—Meeting of Ohio State Dental Society, December 6, 7, 8, 9, 1892.

DR. HENRY BARNES, Cleveland, spent thanksgiving week with his parents at Fall River, Mass.

DIED.—Dr. Robert VanValzah, at Terre Haute, Indiana, October 23, 1892. See obituary notice on another page.

DR. J. A. HOUSER, a dentist from Charleston, W. Va., fell dead while viewing the Columbian parade in Chicago, October 21st.

DR. P. F. SCHOFF, a graduate of the Dental Department of the University of Pennsylvania, has opened an office in the new Callahan Block, Dayton, O.

FOUND DEAD.—The body of Dr. A. Newton, formerly of Hartford, Conn., was found in a clump of bushes in the outskirts of Meriden, October 28th. The head was almost severed from the body. How he came to his death is a mystery.

DR. GEO. E. HUNT, of Indianapolis, Ind., was married Wednesday, Nov. 16, 1892, to Miss Grace Morrison, daughter of W. H. Morrison, of the Morrison & Co. printing establishment, Indianapolis. The OHIO JOURNAL extends hearty congratulations and best wishes.

NATURE SUFFICIENT.—Dentist—"With or without gas? With gas, fifty cents extra."

Mr. Hardacre—"If you can't see in this glaring sunlight, I hain't going to pay you extra for gas, that's sartain."—*Puck*.

DR. LIBER NOT GUILTY.—We have received from Salem, an anonymous communication signed "Neighbors and Citizeus," stating that Dr. Liber's arrest (as noted in our November issue, from newspaper despatches which were not contradicted), was caused by malice on the part of a relative of the parties. We make the correction in justice to Dr. L., although as a rule we cannot give attention to letters without the names of the writers.

THE POSSIBILITIES OF A BARBER'S LIFE in the world's metropolis are suggested by the following, which made a brave showing in a barber's shop a few steps out of High Holborn (the last word being pronounced, by the way, with the first "o" long, and as though there were no "l" in it—Hoburn): "Haircutting, 6d.; shampooing, 6d.; shaving, 3d.; *cleaning and scraping teeth*, 6d.; hats blocked, 3d. Double charge for ladies."—*London Letter in N. Y. Tribune*.

DR. DEJOHNS, the well-known dentist, entertained Champion Jim Corbett, champion of the United States, at his residence, on Ninth street, on Thursday evening at dinner.—*Cin. Paper*.

"Gentleman [?] Jim" it is said, likewise honored with his presence several houses of prostitution in Cincinnati, and ate wine suppers gotten up for his entertainment. He seems to be quite as tough a tough as the ex-champion bruiser, John L. Sullivan.

VALUE OF A COLLEGE EDUCATION.—What is a college education worth in cold cash? This question is brought to the front just now in a contest over the will of a Connecticut man, and the prospect is that the courts will have to render a definite answer to it. The man in question, it seems, had a son

for whom he was anxious to have a diploma from Yale College, and he told a certain tutor that he would give him \$25,000 if he could coach the young man through the course. The tutor succeeded, but the father died before the bill was paid. The heirs now claim that the amount promised was excessive, and decline to pay it. To the young man, measuring the cash value of the education, the sum was probably above what he got for it. But didn't the tutor earn it?

THE COLLEGE YELL.—The Philadelphia police had received orders to lock up any students yelling in the streets, and as the boys thought and talked it over the more restive they became, until on the night of October 30th, they resolved to vindicate their right to yell by a great demonstration, and 2,400 of them, preceded by a squad of mounted police, and reviewed by His Honor, the mayor, marched yelling through the streets. Pennsylvania University came first, 800 strong, with unique effects in lines of marching students, carrying lanterns of red and blue—the college colors. Every man chorused in union their “Hoorah, hoorah, hoorah, Pennsylvania.” The Pennsylvania Dental College carried a transparency reading: “200 orderly students.” “We wear tennis shoes and don't wink on the street.” But the 200 could yell, and they filled the air with “S-st boom, rah—s-st, boom-rah, Pennsylvania College, ha, ha, ha.” And the Philadelphia Dental College was represented by 300 students.

LENGTH OF LIFE.—According to life insurance statistics, it appears that commercial travelers and agents live longer than men in any other kind of business, notwithstanding the hazards which attend transportation by rail and water. Next to them come dentists, teachers and professors, including music teachers. Then come hatters, clergymen and missionaries. Next come bankers and capitalists, who seem to live just a trifle longer than the butchers and marketmen. Lawyers and jewelers follow, and they are succeeded on the list by merchants, peddlers, milkmen and pawnbrokers. Then come gardeners, laborers, civil engineers and canvassers. Book-keepers and bank cashiers, as well as artists and architects, are ahead of newspaper men. They come in next with the printers, physicians and gentlemen who are not engaged in any active employment. Then follow the apothecaries and photographers, and after them in order, bankers, cigarmakers, real estate agents, army officers and soldiers, liquor dealers, mariners and naval officers. Shortest lived of all seem to be the auctioneers, boarding-house keepers, barbers and drivers.

TOOTHACHE IN THE “GOOD OLD TIMES.”—St. Augustine, in his “Confessions,” relates how he once suffered from “dolor dentium” (toothache), apparently in an aggravated form, for he could not speak. Thereupon, he wrote on wax a prayer to God for the other brethren to repeat, and as soon as all were on their knees the pain went. “But what a pain!” he says—“never since my tender age had I experienced the like.” Southey, in his “Life of John Wesley,” tells of that eminent preacher that when his own tooth ached he prayed, and the pain left him.

Unfortunately ordinary men do not seem to have such efficacious faith.

When the excruciation begins they must bear it philosophically; and on Shakespeare's authority, toothache finds out just the weak place in the philosopher's armor of patience. In the Middle Ages, the devout who were racked with pain had a special patron to whom they could call for deliverance. St. Apollonia, a martyr under Emperor Philip, among other cruel indignities, had her teeth pulled out. In consequence, she became toothache's tutelary saint, as her emblems—one of which is "holding a tooth in pincers"—sufficiently testify. And there would seem to have been yet another martyr, St. Blaise, who took cognizance of the disease. He was honored in the little town of St. Blazey, in Cornwall, where candles offered upon his altar were supposed to be an infallible cure for toothache.—*Chamber's Journal*.

A TRAGEDY.—In the latter part of 1891, there appeared in several dental journals this unique advertisement:

"FREE!" 'THE DENTIST HIMSELF,' an Aid to Professional and Financial Success; also designed to distribute wholesome and toothsome information among the people. A new, handsome, 50-page Monthly Dental and Health Journal, with an occasional Supplement, FREE for a whole year. Keep your numbers clean, return them at the end of the year in good order for binding, and the subscription price, \$1.00, will be REFUNDED, or another year's Subscription will be given on the same terms!

Always willing to receive something for nothing, and our news-sense suggesting an interesting item, we sent our dollar and received the first and only number, dated January, 1892. A notice of the new journal, giving as our impression that the editor and publisher was deranged, had not reached the printers when we received back our dollar with the statement that the editor's physician had ordered him to discontinue its publication. This only confirmed our suspicions, and we suppressed the notice for fear of aggravating his malady. While suffering from mental aberration August 16, 1892, as noticed in our September issue, he committed suicide by cutting his throat. Here are some of the headings from *The Dentist Himself*:

"The Editor sat in his hard office chair,
And his scissors and pen, and his ink, too, flew;
He perspired like a Turk, and he said 'This is work,
But I like it, I like it, I do.'"

"Lay down the hatchet and the hoe!
Let the broach and the bur and plugger go;
And occasionally write for your own and our delight,
And our lives will be all the richer, don't you know?"

"If mankind's proper study is man,
In his search for power, pleasure or pelf,
For the dentist it must be an excellent plan
To study THE DENTIST HIMSELF."

"Here and there and everywhere,
Homely weed and floweret fair,
We pluck them as we go and come
Through this broad land of Dentaldom."

WE WISH OUR READERS A MERRY CHRISTMAS AND HAPPY NEW YEAR.

WE WISH YOU A HAPPY NEW YEAR.

VOL. XII.

JANUARY, 1892.

No. 1.

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THE
OHIO JOURNAL
OF
DENTAL SCIENCE.

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GEORGE WATT, M. D., D. D. S.,
XENIA, OHIO.

L. P. BETHEL, D. D. S.,
KENT, OHIO.

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TO CORRESPONDENTS.

Communications intended for the Editor should be addressed to
 DR. GEO. WATT, Xenia, O., or DR. L. P. BETHEL, Kent, O.

Subscriptions and Advertisements send to the Publishers,

RANSOM & RANDOLPH,
 TOLEDO, O.



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(MEDICINAL) H_2O_2 (ABSOLUTELY HARMLESS.)

**Most powerful bactericide and pus destroyer.
Endorsed by the medical profession.
Uniform in strength, purity, stability.
Retains germicidal power any length of time.
Taken internally or applied externally with
perfect safety.**

Send for free book of 72 pages, giving articles by the following contributors:

DR. PAUL GIBIER, New York Bacteriological and Pasteur Institute. "**Peroxide of Hydrogen and Ozone—Their Antiseptic Properties.**" *Medical News of Phila., Pa.*

DR. S. POTTS EAGLETON, Resident Physician in the Children's Hospital of Philadelphia. "**Resumé—Hydrogen Peroxide in Surgical Affections.**" *Medical and Surgical Reporter*, Philadelphia, Pa.

DR. CHARLES P. NOBLE, Surgeon Kensington Hospital of Philadelphia. "**Peroxide of Hydrogen in Abdominal Surgery.**" *Medical News of Philadelphia, Pa.*


DR. C. A. PHILLIPS, of Boston, Mass. Read before the International Congress of Homœopathy, Atlantic City, N. J., June 19th, 1891. "**Adjuvants or Aids to Gynecology.**"

NOTE.—Avoid substitutes—in shape of the commercial article bottled—unfit and unsafe to use as a medicine.

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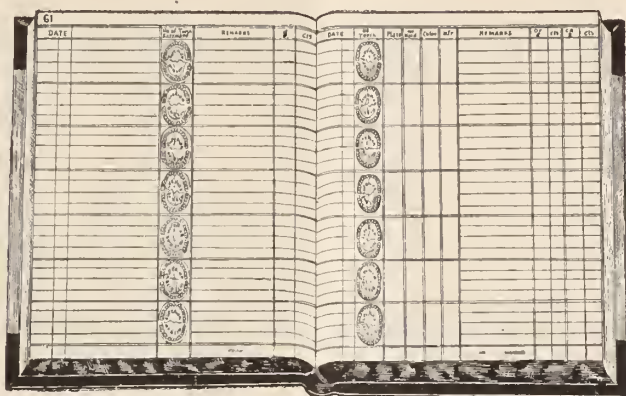
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We illustrate herewith our **MECHANICAL DENTAL REGISTER**. The left hand page is for registering the date, name and residence of patient, number of teeth extracted (by marking the cut) and amount paid. It also has space for noting the time patient is to return for plate, and for other remarks.



The right hand page is for registering date, number of teeth inserted (by marking the cut), material of which plate is made, the number of mold, color and manufacturer of teeth used, the amount charged, and amount paid, with space for remarks.

Best quality of paper is used, and all lines are ruled in colors.

The Register contains space for 1190 accounts 170 pages, seven accounts on each page, is indexed, and handsomely bound in leather, with bands and ends, the same as our "Bannister's Register."

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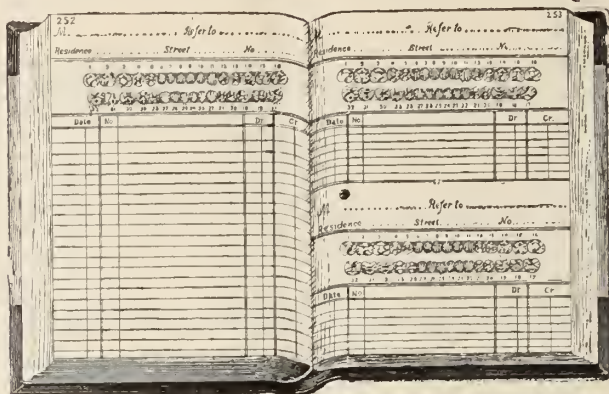
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513 Jefferson Street, - - - - TOLEDO, OHIO.

Bannister's Improved Dental Register.



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The cuts convey a fair idea of our "Bannister's Improved Dental Register." A superior quality of paper is used in this register, and the perpendicular and horizontal lines are ruled in colors.

The teeth are engraved in two straight lines for economy of space, and are numbered from 1 to 32. Dots are used to represent the location of the filling. Thus, 10² would mean that tooth No. 10 contained a filling in the position indicated by : (two dots).



THIS IS THE ONLY REGISTER PRINTED in which the account of an entire family may be kept on one page instead of opening a separate account for each.

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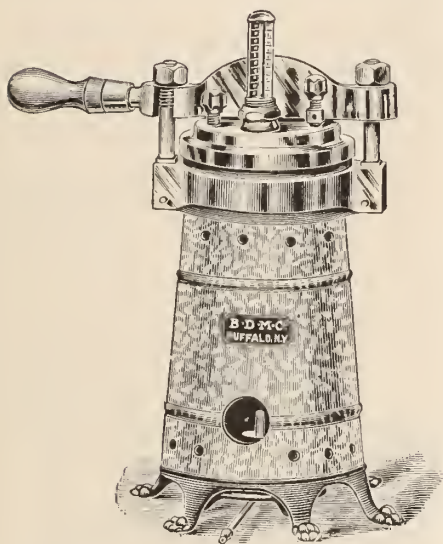
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This school is open the year round. Instruction given in everything pertaining to Prosthetic Dentistry. Students may enter at any time.

One month of steady technical work, under the direction of Prof. HASKELL and assistants, constitutes a course of instruction.

This is deemed sufficient time for any graduate or practitioner to become familiar with all the specialties taught in the school, including Crown, Bridge and Continuous-Gum Work.

Tuition Fee for Course, Fifty Dollars.

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The "Diagram" Appointment Book and Pocket Diary is a book suggested by practical dentists, and meets the wants of the profession. The "Diagram" Appointment Book is $6\frac{3}{4} \times 4\frac{1}{4}$ inches. In the front it has calendars for three years, and a table to show the number of days from any day in one month to the same day in any other month. The new feature of the book combines with an appointment book a DIAGRAM for registering the work to be done, or to make memorandum of the work when finished, by having a diagram for each day, and the diagram in such shape as to be efficient and yet not make the book bulky and unhandy. There are one week's appointments on two opposite pages, and, therefore, six diagrams on same space. In the back of the book are pages for memoranda.

The book may be used without the diagrams and then is very similar to other appointment books. There can be no disappointment in the paper, ruling, printing or binding, as they are all first-class in every particular.

TUESDAY.
2 Mo. J. O



8	Miss Frailey	1	P. W. Peck
9		2	Edgar Thomas
10	Bertie Cook	3	
11	Mrs. Harmon	4	Paul Ross
12		5	

The above is a facsimile of one day's work in the "Diagram Appointment Book;" the appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other memorandum is necessary for immediate use; at leisure the work may be copied into the large ledger, if desired. After each person's name a note may be made of the amount charged or paid. It will be seen that it is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram; thus the figure 8 in the diagram stands for, Miss Frailey, the 8 o'clock appointment.

Price in Cloth, 50 Cents. Leather, 75 Cents.

The Wilmington Dental Mfg Co.,

PHILADELPHIA, NEW YORK, CHICAGO.

The S. S. White Side-Wheel Dental Engines, E, F, G, and H.

AN IMPROVEMENT AND A REDUCTION.

Many machines have been brought forward within the last twenty years to "knock out" the S. S. White Dental Engine, but it still keeps its place at the head of the class,—the best known, the most popular, the most satisfactory engine for general service used by dentists,—while most of those which were to drive it out of the market are forgotten, and for the rest, time will bury them all.

That the first S. S. White Engine embodied the correct principles of construction is shown by the fact that though modifications have been introduced to enhance its utility, the governing ideas are the same,—the flexible arm, the rocking upright, the spring pitman are still there.

We have now the pleasure of offering a still further improved S. S. White Engine,—in some features the most marked departure from the original form yet made. The most prominent of these changes is that which gives it its name, "Side-Wheel." The yoke is dispensed with, and the base is made open frame like the New Cord (Weber-Perry) with the driving wheel supported at one end of a pinion journaled through it, at the other end of which is the crank-shaft. The spokes are "dished" to center the weight of the rim. The pitman is a flat steel spring with brass attachment and ball bearing for the crank-shaft. There is no external balance-spring. Instead, an adjustable coil working in a tube placed below the pinion automatically returns the rocking-standard to the perpendicular. The standard has a movement toward the operator of 7 inches; away from him of 3 inches, a range which experience shows to be ample.

These modifications are all important. The Side-wheel Engine runs smoother and gives greater speed with less exertion, because there is less resistance to overcome and it is therefore easier on the foot than any of its predecessors. Not the least of its advantages is the facility afforded for the putting on or removal of an endless driving cord, heretofore impossible in the S. S. White Engine.

Among the minor improvements may be named, a rubber heel-pad for the treadle, the enlargement of the thumb-nut adjusting the height of the standard, slight modifications of the pulley-head for convenience and smoother working, the setting of the standard in the top of the wheel-frame, where it is fixed with a set-screw, and the introduction of a cross-piece in the standard for lifting the machine.

The Side-Wheel Engine is made with four sizes of driving-wheels corresponding to those of the former styles of the S. S. White Improved Dental Engine known as A, B, C, and D, which it is perhaps unnecessary to state we shall no longer manufacture. The new forms will be designated as the S. S. White Side-Wheel Engine, E, F, G, and H. On the medium and large wheels there is a reduced price.

On the opposite page we illustrate the "E" or Small Wheel Engine, with a second view showing the position when the standard is tilted toward the operator.

Engines "F," "G," and "H," differ from this only in the size and weight of the driving-wheel, as follows:

"E."	Diameter of driving-wheel	-	-	-	-	-	10 inches.
	Weight	"	"	"	"	about	6¾ lbs.
"F."	Diameter	"	"	"	"	-	12¾ inches.
	Weight	"	"	"	"	about	3¾ lbs.
"G."	Diameter	"	"	"	"	-	12¾ inches.
	Weight	"	"	"	"	about	15½ lbs.
"H."	Diameter	"	"	"	"	-	15 inches.
	Weight	"	"	"	"	about	14¼ lbs.

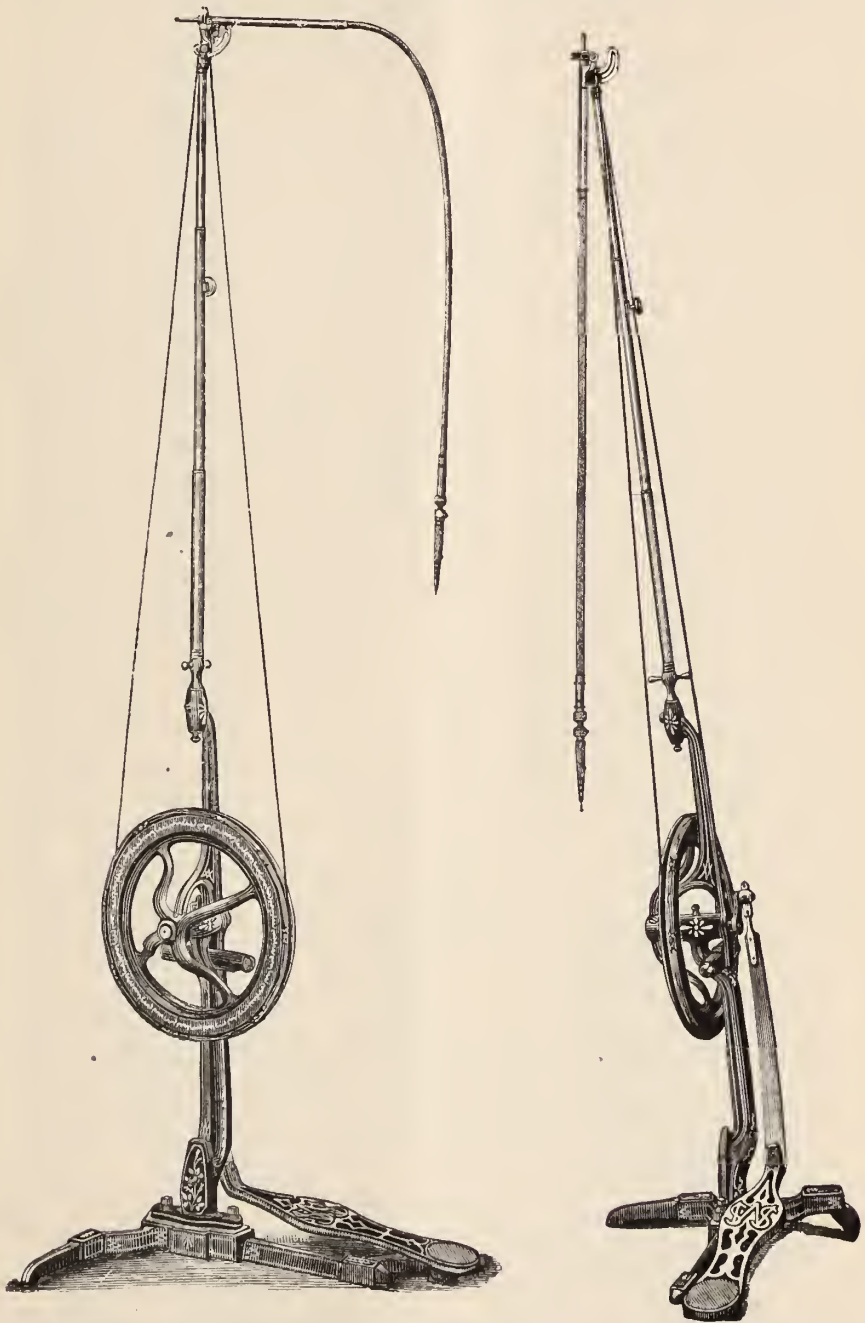
PRICES.

"E,"	with Fourteen Instruments	-	-	\$40.00
"F," "G," or "H,"	"	-	-	43.00
Boxing, either style, 75 cents.				

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THE S. S. WHITE SIDE-WHEEL ENGINE.



A new catalogue of our Engines and Equipments will be furnished on application.

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THE NEW CORD (Weber-Perry Improvement) DENTAL ENGINE.

[SEE OPPOSITE PAGE.]

The distinguishing features of this Engine are the entire absence of "back-lash," the absolutely steady motion of the bit, and the perfect maintenance of unvaried tension of the driving-belt, when once adjusted, without regard to the position or movements of the working arm or Hand-piece.

The driving-belt is an endless cord by which the power is conveyed directly from the driving-wheel to the spindle of the Hand-piece. The compensating device consists of a series of pulleys at the elbow and wrist-joints of the arm, having as their axes the centers of the respective joints, and so arranged that the cord in passing from the driving-wheel to the Hand-piece spindle rides *over* one pulley of each series and in returning passes *under* the complementary pulleys. When the arm is raised or lowered, the cord is wound upon one pulley to the exact extent that it is unwound from the complementary pulley; the result being an absolutely unvarying tension of the cord.

The tension can of course be changed at will, by turning the thumb nut on the upright. This operates a rack and pinion device, which lengthens or shortens the standard, thus tightening or loosening the tension. Much of the work of this Engine can be done with a slack driving-belt.

Novel ideas abound in the construction. The driving wheel, which is so supported in its frame as to permit the easy placing of the endless belt, instead of running upon a stud, is made fast to the opposite end of the crank-shaft pinion, the spokes being so dished as to center the weight of the rim over the journal upon which it revolves.

The pulley-head, to which the jointed working arm is pivoted, carries two pulleys, one at either side, and is swiveled in the top of the upright. The pivoted motion of the working arm is governed by a quadrant and friction-clamp. The swiveling motion is free. At the outer end of the upper section of the arm a pulley-frame, carrying a series of three compensating pulleys, is swiveled, and to this frame the outer section or forearm is hinged. A second hinged pulley-frame, carrying two pairs of complementary pulleys and also the Hand-piece pulley, which is placed between the pairs, is swiveled at the outer end of the forearm, making a wrist joint. The Hand-piece is attached by a slip-joint connection.

The New Cord Engine is perhaps the finest example of the perfection to which machinery for dentists' use has been brought in design and workmanship. Those who recall the first beginnings in dental machinery will recognize the contrast between the crude productions of that earlier day and the beautiful mechanism embodied in the New Cord Engine, which is unquestionably the most thoroughly and expensively built engine yet put upon the market. As an example, the bushings of all the pulleys are of hardened steel, carefully lapped out after hardening. All the pulleys, except the two pairs of small compensating pulleys at the wrist-joint, are made of hard rubber. Every detail has been carefully thought out, special machinery and tools have been made to give to each part the best construction possible, and every step of the work has been under careful supervision and intelligent direction.

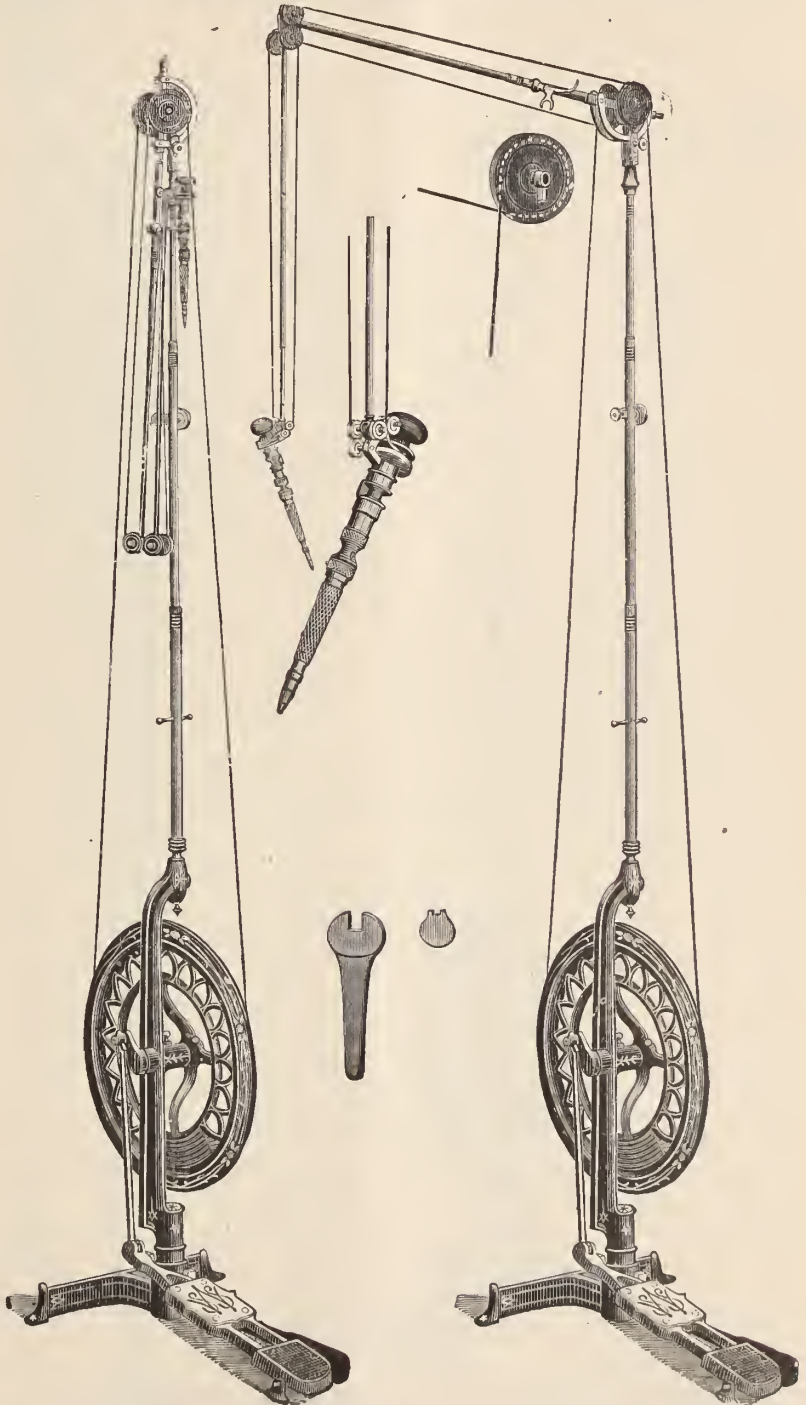
Price, boxed - - - - - \$65.00

The price includes Hand-piece (any style of our make) and Fourteen Instruments. Please specify the Hand-piece; if not specified, No. 6 will be sent.

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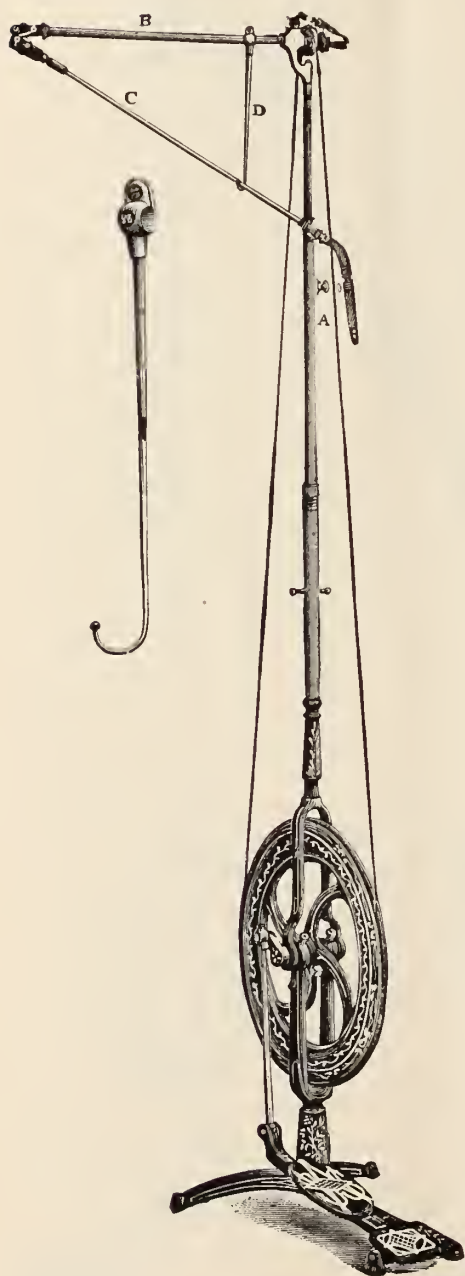
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The Weber-Perry Dental Engine.



THE S. S. WHITE DENTAL MANUFACTURING CO.,
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The Improved Shaw Dental Engine.



In the Improved Shaw Dental Engine the power is transmitted through a steel shaft composed of two sections joined together by a duplex driving-spring. The sections are journaled through sleeves attached to one another by compound pivotal hinges, so that the shaft is protected at every point from the pulley-head to the hand-piece. The pulley-head swivels freely in the top of the standard. The hand-piece is connected to the outer section of the shaft by a second duplex driving-spring, and has universal motion. The pulley is provided with two grooves, with which the driving cord can be readily adjusted to give two widely different speeds with the same treadle movement. The treadle is so hinged as to adapt it to any unevenness of the floor, and a spring underneath keeps the crank always off center, so that a slight movement of the treadle starts the engine. The driving-wheel is $12\frac{1}{2}$ inches in diameter.

The Shaw Engine is easy-running, free from "pull" upon the hand-piece, and exactly adapted to the wants of many operators.

Price, complete - \$40.00

The price includes Hand-piece (any style of our make) and Fourteen Instruments. Specify the Hand-piece desired; if not specified, No. 6 will be sent.

Boxing - - - 75 cents.

THE S. S. WHITE DENTAL MFG. CO.,

Philadelphia, New York, Boston Chicago, Brooklyn, Atlanta

THE BONWILL

IMPROVED

Mechanical Mallet No. 1, FOR SOCKET-POINTS.



In this Mallet the blow is delivered by a revolving hammer, a metal wheel with a steel plate let into its rim, and projecting sufficiently to strike the head of the plunger at each revolution of the wheel. The other end of the plunger is hollow, and split in three sections, for the reception of the plugging point. It will hold securely the Snow & Lewis, Cone-Socket, or Engine-bits.

The rapidity of the blows is only limited by the speed at which the engine is run. The force of the blow can be varied by running the engine faster or slower, or by greater or less pressure on the plugging-point, or by squeezing the split portion of the case. As sent out, the Mallets are properly adjusted for use, and on no account must the hammer projection be disturbed. All the adjustment necessary is to be accomplished by turning the adjuster. This revolves a worm-gear, which moves very slowly, permitting an adjustment as close as the thousandth part of an inch. No change ought to be necessary except from wear.

The Mallet is held in the hand like a pen or pencil, with the two first fingers resting upon the squeeze-nut, and the thumb against the milled portion of the case. This manner of holding it gives complete control of the working of the Mallet. The blows may be intermitted temporarily without stopping the engine, as in picking up and placing the gold, by simply extending the fingers, thus removing the end of the plunger from contact with the hammer; or the blows may be made almost continuous, by flexing the fingers; or the plugging-point may be turned and directed by a movement of the thumb and fingers.

The milled portion of the case is swiveled at G, to permit change in the position of the plugging-point.

The Mechanical Mallet No. 1 can be used with the No. 4, No. 6, No. 7, or No. 8 Hand-pieces, with or without the Slip-Joint Connection, and can be operated by any of our Engines. The illustration shows the Slip-Joint Connection.

Directions for use with each Mallet.

Price - - - - - \$15.00

In ordering, be sure to indicate which attachment is wanted.

THE S. S. WHITE DENTAL MFG. CO.,
Philadelphia, New York, Boston,
Chicago, Brooklyn, Atlanta.

THE BONWILL

Improved Mechanical Mallet,

No. 2,

For ELECTRIC Mallet PLUGGERS.

In the Improved Mechanical Mallet No. 2, the advantages of the form and construction of the Electric Mallet are adapted to the needs of engine-work. By combining the stem and holder of the Electric Mallet with the striking mechanism of the Mechanical Mallet No. 1, an appliance is formed in which the operator can use effectively the long-handle pluggers made for the Electric Mallet. Ordinary socket points can also be used in it with equal facility by means of the proper socket-handles (see page 37 of our latest Instrument Catalogue).

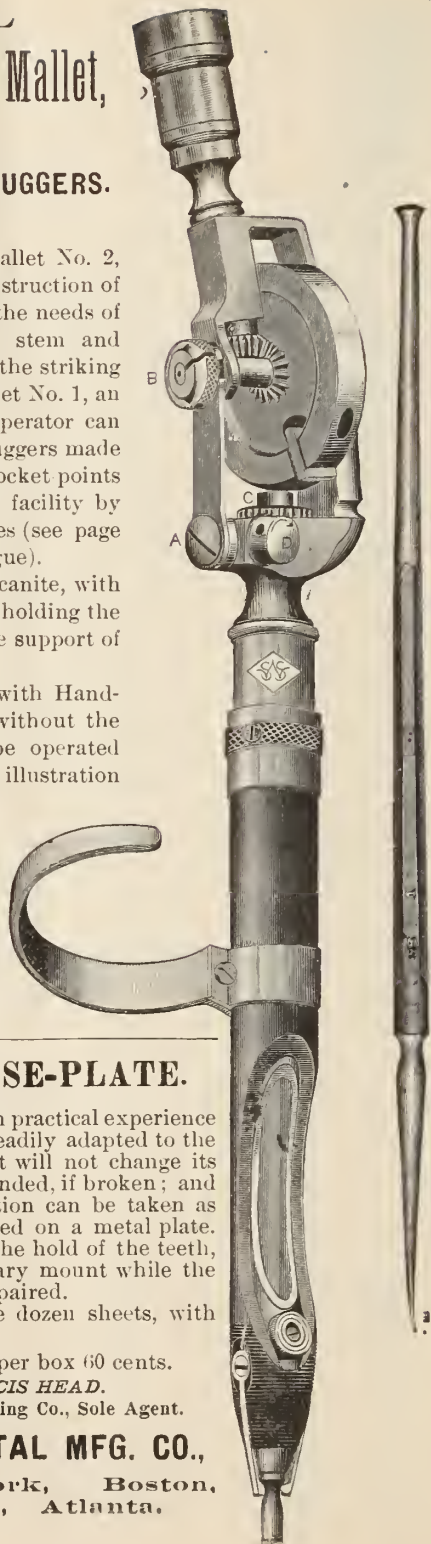
The stem is of hard rubber or vulcanite, with finger slot, stop-motion, springs for holding the instrument steady, and ring for the support of the Mallet.

The No. 2 Mallet can be used with Hand-pieces Nos. 4, 6, 7, or 8, with or without the Slip-Joint Connection, and can be operated with any of our Engines. The illustration shows the Slip-Joint Connection.

The plugger is illustrated to show the character of the instrument used in this Mallet, but it is not included in the price.

Price - - - \$18.00

In ordering, state which attachment is wanted.



IDEAL DENTAL BASE-PLATE.

Dr. Head's preparation justifies in practical experience all the claims made for it. It is readily adapted to the model, which it fits like a glove; it will not change its shape in the mouth; it is easily mended, if broken; and with it the bite and the articulation can be taken as readily as if the teeth were mounted on a metal plate. So rigid is it, in fact, and so firm the hold of the teeth, that it may be used for a temporary mount while the patient's permanent set is being repaired.

Put up in boxes containing one dozen sheets, with full directions for use.

Price - - - per box 60 cents.

Manufactured by FRANCIS HEAD.

The S. S. White Dental Manufacturing Co., Sole Agent.

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. The . Dental Cosmos for 1892

A Mirror of the Dentists' World . . .

For thirty-three years the DENTAL COSMOS has been the foremost exponent of the scientific, professional, educational, and material advancement of dentistry. Not a single upward step has been taken during the period covered by its publication that has not been heralded in its pages, or promptly announced when accomplished. It has faithfully reflected the best works of the dental profession, and in so doing it has aimed to inspire the readers to yet greater achievements. It has endeavored to do its part honestly and earnestly to the end that dentistry might be the gainer.

Let the thirty-three volumes of the DENTAL COSMOS which the issue for December, 1891, rounds out stand as its answer to the question, How has its aim been carried out? We know of no higher aim for a professional journal than that which has actuated the course of the DENTAL COSMOS.

An Index to the Progress of Dentistry . . .

In asking the support of the dental profession for the thirty-fourth volume, we can only promise that the DENTAL COSMOS will continue, as heretofore, to *index the progress of dentistry*. Therein rests its claim to the favor of dentists,—that in no other way, not even with the help of all the other dental journals, can they hope to obtain so true an idea of what is being done to uplift the science and art of their profession as by reading the monthly issues of the DENTAL COSMOS.

A Further Enlargement . . .

Commencing with January, 1892, the reading matter of each number of the DENTAL COSMOS will be increased nearly twenty per cent., without adding to the cost of the journal to subscribers. This will be accomplished, not by adding to the number of pages, nor by reducing the size of the type, but by omitting the leads, with a slight modification in the typographical arrangement. The only change in appearance will be the more solid and substantial look which the pages will present.

The subscription price will continue to be \$2.50 a year in advance, postage paid, to United States, Dominion of Canada, and Mexico. To Postal Union countries the postage is fifty cents a year additional.

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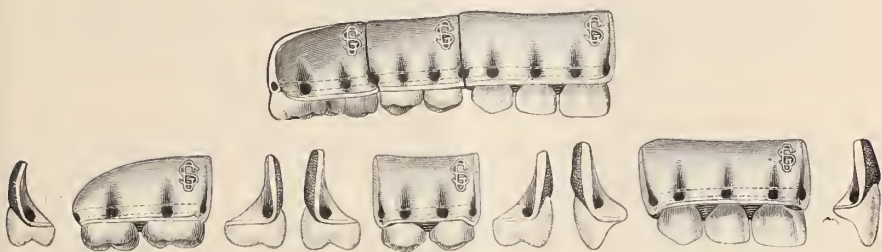
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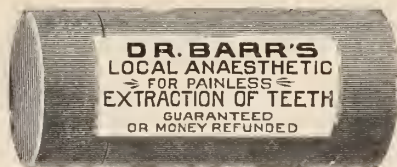
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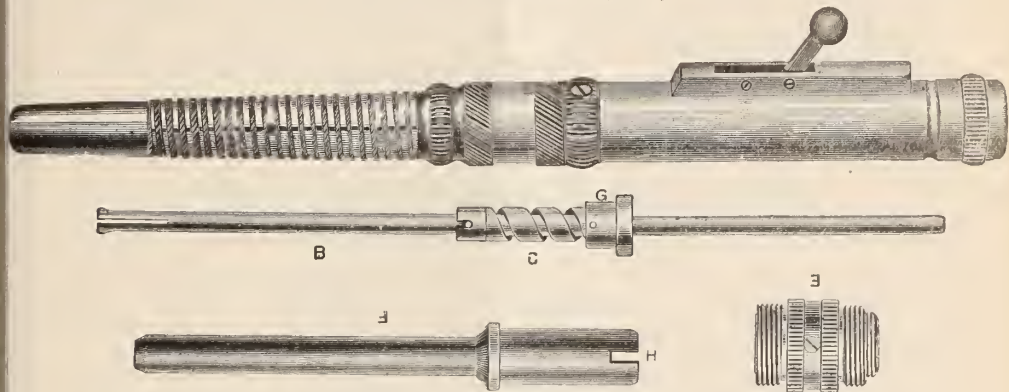
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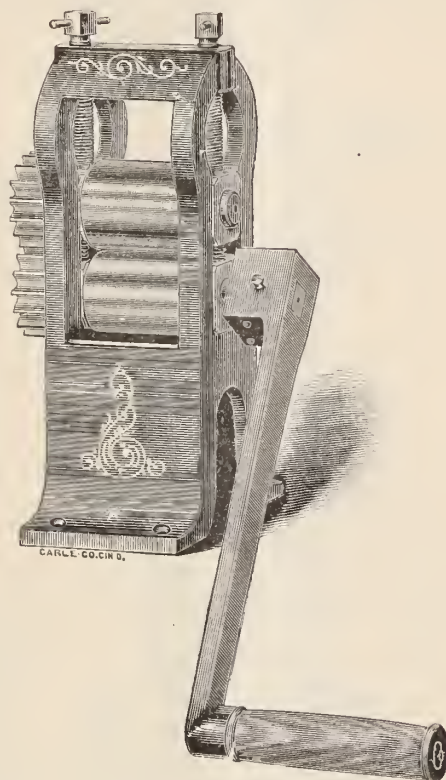
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WARRANTED.

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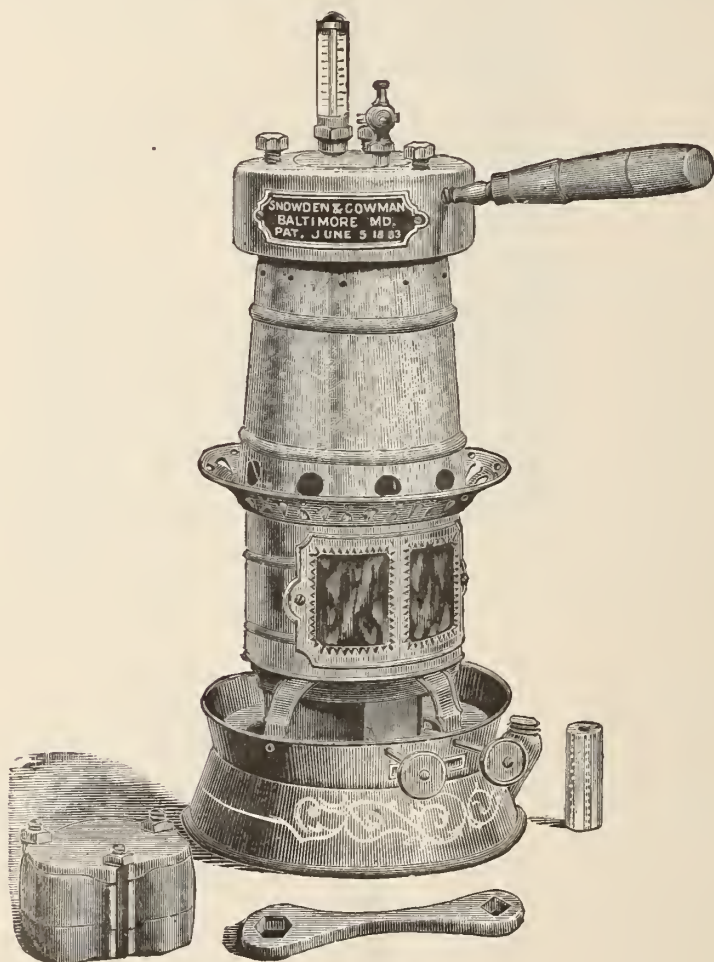
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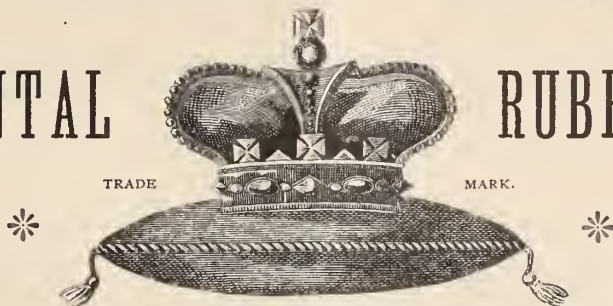
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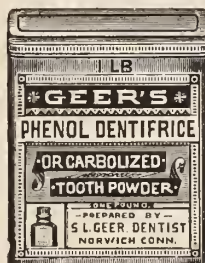
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AS A TOOTH-POWDER FOR GENERAL USE, IT STANDS UNRIVALLED.

PRICE.

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The preliminary examination will be held Wednesday, September 30, 1891.

Three full courses of study of nine months each are required for graduation.

The fees, which must be paid in advance each year, are, for non-residents of Michigan, \$60, first year; \$35 second year, and \$45 third year. These fees cover all expense of tuition, but not of material used in laboratory courses.

The annual announcement containing full particulars will be sent to any one addressing a request to

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Thirty-Sixth Street and Woodland Ave., Philadelphia.

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At the close of the first year, examinations are held in *Chemistry, Histology, and Materia Medica*. At the end of the second year upon *Anatomy and Physiology*. If the student is not qualified, a second examination is afforded him at the beginning of the next winter session.

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All applicants for advanced standing must pass the required examinations of this school, or furnish proof that they have passed equivalent examinations in some recognized Dental or Medical school. Graduates of a reputable Medical College will be admitted to the second year without examination.

A preliminary examination in the English branches will be required for entrance. This will not be demanded of those presenting certificates from colleges or recognized schools.

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Tuition for one course of lectures	-	-	-	-	-	-	100.00
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DEPARTMENT OF DENTISTRY—UNIVERSITY OF CINCINNATI.

SESSIONS 1891-'92.

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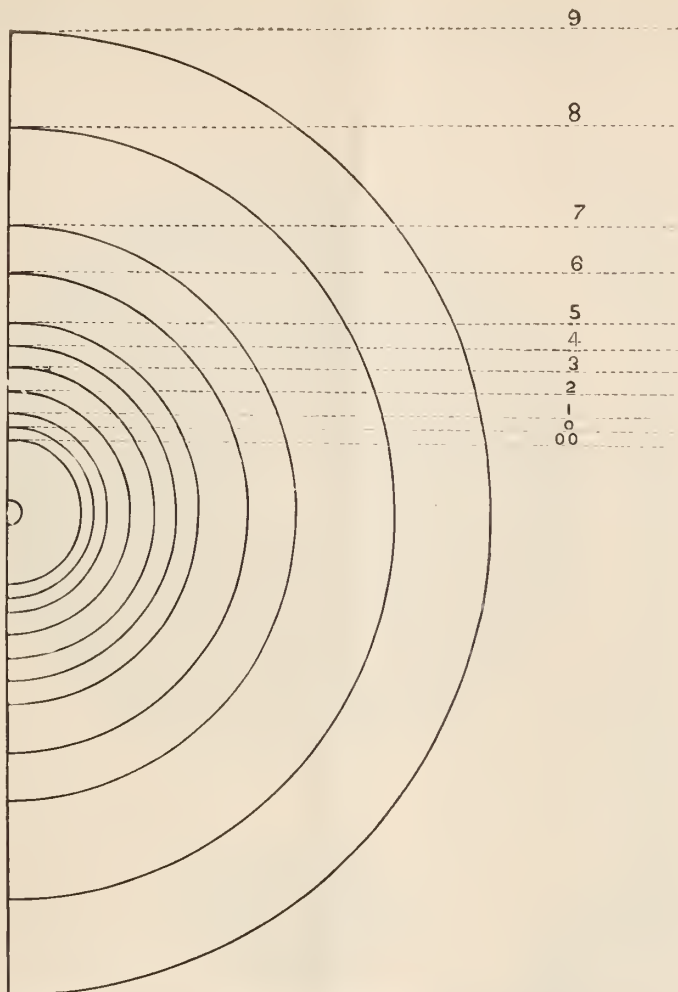
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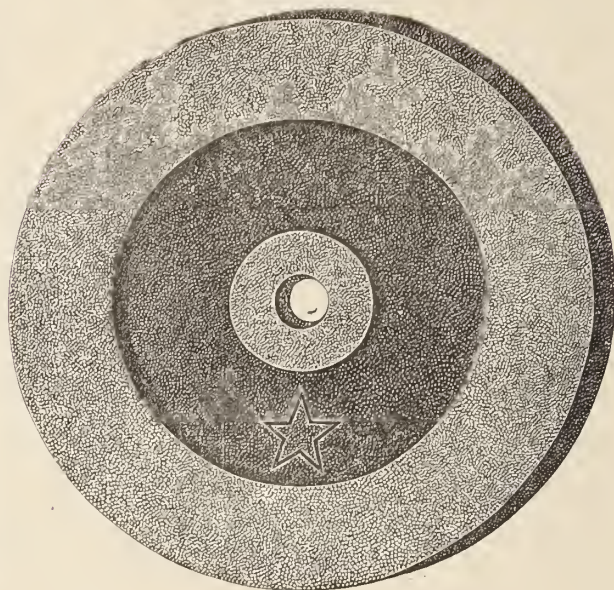
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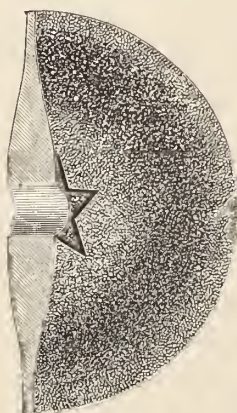
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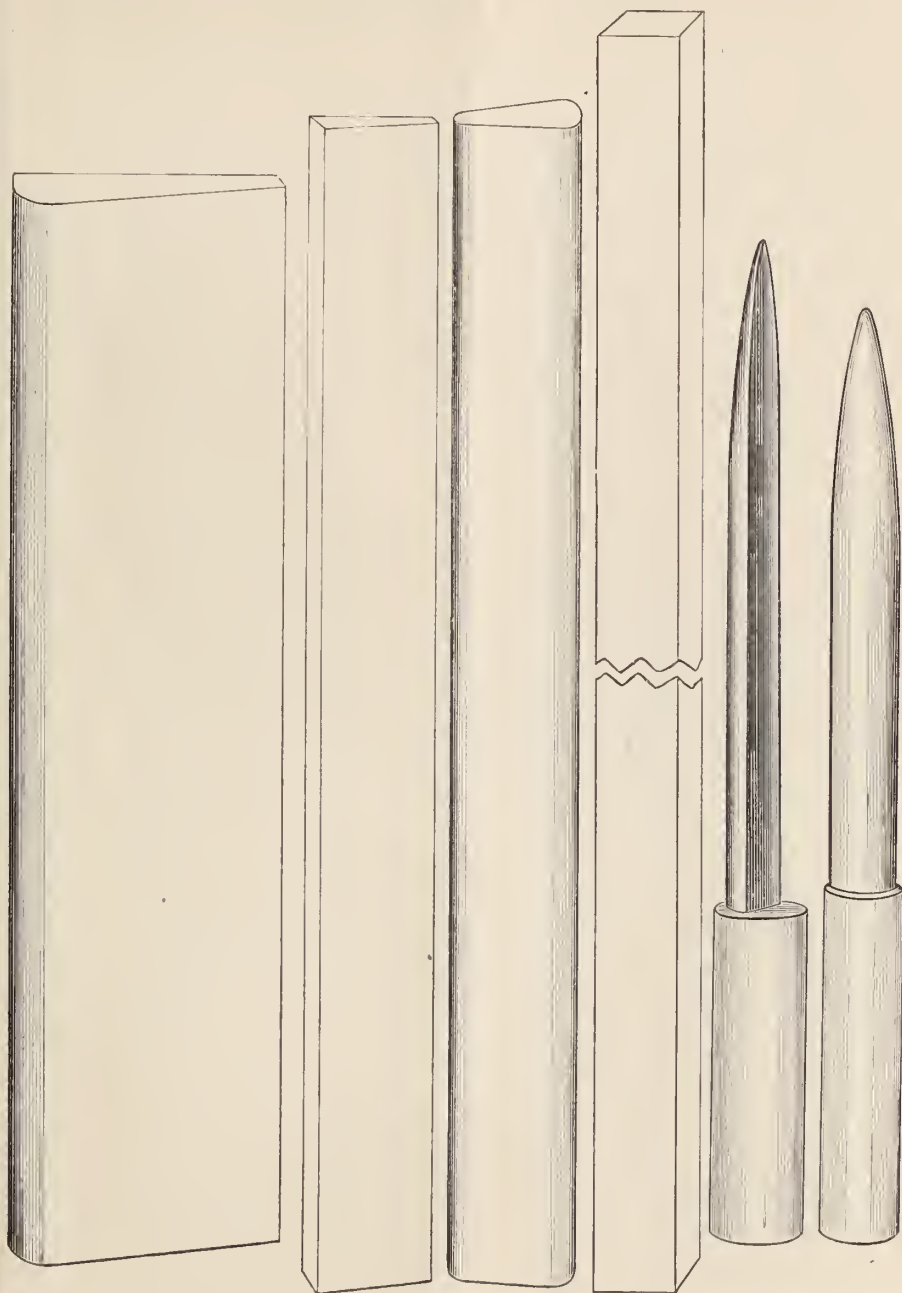


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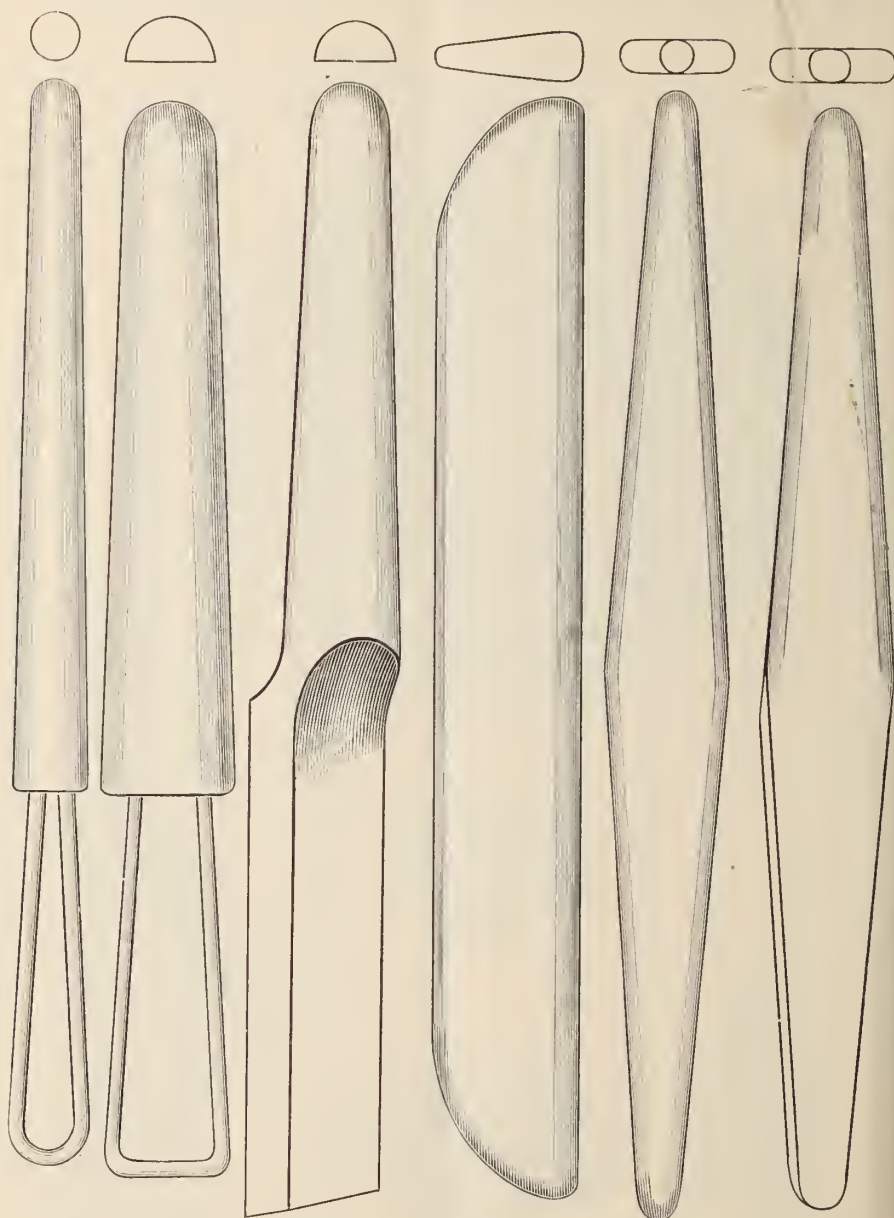
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